REPORT RESUMES

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PROJECT GATEKEEPER, THE REDUCTION OF JOB DISCRIMINATION BY THE USE OF SELF-CONFRONTATION AND FEEDBACK TO THE DISCRIMINATOR.

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DESCRIPTORS- *DISADVANTAGED GROUPS, ABILITY IDENTIFICATION, SENSITIVITY TRAINING, EMPLOYMENT QUALIFICATIONS, *EMPLOYMENT INTERVIEWS, PILOT PROJECTS, *EDUCATIONAL PROGRAMS, TAPE RECORDINGS, FEEDBACK, CASE STUDIES (EDUCATION), SIMULATION, *DISCRIMINATORY ATTITUDES (SOCIAL), ROLE PLAYING, JOB APPLICANTS, TEACHING TECHNIQUES, *DECISION MAKING, PROGRAM EVALUATION, PERSONNEL SELECTION,

THE MAIN OBJECTIVE OF THIS PILOT STUDY WAS TO DESIGN A PROGRAM FOR TRAINING DECISION-MAKERS (EMPLOYERS) TO INTERACT WITH DISADVANTAGED PERSONS AND TO EVALUATE THEIR "CAREER POTENTIAL" MORE APPROPRIATELY. TRAINING METHODS INCLUDE THE USE OF VIDEOTAPE RECORDINGS AND PLAYBACK, AUDIOTAPE RECORDINGS OF INTERVIEWS AND PLAYBACK, SENSITIVITY TRAINING, ROLE-PLAYING (SIMULATED INTERVIEWING), PROGRAMED CASES, PROGRAMED PERSONNEL DATA, AND TRADITIONAL METHODS OF TRAINING SUCH AS LECTURING AND CASE STUDIES. FINDINGS OF EARLIER STUDIES AND EXPERIMENTS OF THIS STUDY ARE INCLUDED IN THE EVALUATIONS OF THE PROJECT. FINDINGS INCLUDE--(1) THE SOCIAL DISTANCE DESIRED BY THE APPLICANT WITH THE INTERVIEWER IS CORRELATED WITH THE UNDERSTANDING THE APPLICANT BELIEVES THE INTERVIEWER HAS FOR HIM, (2) THE SOCIAL DISTANCE VIEWED BY THE APPLICANT IS RELATED INVERSELY TO THE QUALIFICATION RATING OF THE APPLICANT BY THE INTERVIEWER, (3) INTERVIEWERS DO A BETTER JOB WHEN APPLICANTS FEEL QUALIFIED, (4) INTERVIEWERS DO A BETTER JOB WHEN THEY REGARD APPLICANTS AS QUALIFIED, AND (5) INTERVIEWERS DO A BETTER JOB WHEN THE APPLICANT'S RATING OF SOCIAL DISTANCE INDICATES GREATER INTIMACY AND UNDERSTANDING. (PS)

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Project Gatekeeper

The reduction of job discrimination by the use of self-confrontation and feedback to the discriminator.

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I. The Situation of the Disadvantaged Person

The main objective of this pilot project is the design of a program for training administrators in the recognition of "career potential," especially among disadvantaged persons. The principal findings describe the use of videotape playback, programed case, and related training methods. The recommendations call for the institution of a pilot training laboratory, followed by other laboratories, as evidence supports their use.

The assumption on which this project was carried out concerns the role of a group of people we will call "Gatekeepers of Opportunity." A relatively small number of administrators and managers, in government and industry, control the "gateways" to jobs and opportunities. The assumption about these Gatekeepers is that:

> even when law-abiding and unprejudiced,
> the typical Gatekeeper makes decisions
> about jobs and promotions in such a way
> as to underestimate the abilities and
> magnify the failures of disadvantaged
> persons.

A second assumption is that this lack of perceptiveness of the Gatekeeper can be changed by training, provided the policies of his corporation or agency do not forcefully negate the training effects.

A third assumption is that orthodox classroom methods of training, such as lectures, readings, case discussion, are not sufficient to change the habits of the Gatekeeper. What is called the "personnel bureaucracy" is firmly entrenched and cannot be easily altered.

Appraising disadvantaged people

Why should it be true that the personnel man or other Gatekeeper ignores the abilities and magnifies the failures of disadvantaged applicants? We believe this practice to be rooted deeply in personnel practice and tradition rather than in prejudice. That is, even if prejudice were magically eliminated overnight, the disadvantage of large segments of our working population would be largely unaffected.

The Negative Frame of Reference. The word "selection" has always conveyed a decision in which usually more applicants are rejected than selected. The concept has negative connotations which are not without importance. For example, it can probably be demonstrated that the average interviewer will stop interviewing or seriously listening once he hears such facts as any of these:

-- a 45 year old unskilled laborer suffers frequent epileptic seizures

-- a job applicant reveals that he has recently been released from the penitentiary

-- a 50 year old business executive reports that he has been unemployed for eight months.

The Negative Frame of Reference concentrates on evidence that a person cannot do a job. There is, in fact, objective evidence that negative predictions (of what a person probably cannot do) are more accurate than positive predictions (of what he can do) (1). This adds strength to the Negative Frame of Reference.

Moreover, this Frame of Reference is "efficient," in that it closes off further discussion and saves the time of the interviewer. Why waste time talking to a person when it is "certain" that he cannot do the job in question?

The pessimistic conclusions implied by the Negative Frame of Reference are applied over and over again to the chronically unemployed or underemployed. Poor people might well be defined as those with conspicuous liabilities in the past and whose escape chances are at a minimum.

The importance of the Negative Frame of Reference does not lie in its validity (although in some cases it is undoubtedly valid), but in the effect it has on the two participants. The interviewer does not learn how valid his conclusions are, because he stops the interview too soon to find out. The applicant becomes "brainwashed" to believe that he will never get past the initial rejection line drawn by personnel departments.

The Probability Frame of Reference. If an applicant survives in the evaluation procedure long enough, he will be seen in a Frame of Reference in which the interviewer makes a more detailed forecast of what the applicant can do. In making this forecast, interviewers are especially guided by such assumptions as "a person will do as well in the future as he has done in the past."

Some personnel managers use this frame very narrowly, and some use it with flexibility. But it victimizes those with a poor past record (even though they may have changed), and those with no past record (such as teenagers). Thus, this "second line of defense" also screens out the chronically disadvantaged.

As part of this Frame of Reference, industrial psychologists often advocate the use of objective tests. Test forecasts, when made on the basis of quantative norms, are a highly appropriate application of the Probability Frame of Reference. Unfortunately for the disadvantaged groups, the use of such tests will only perpetuate their traditional employment disadvantages. According to Eells, Havighurst, and Cronbach, ". . . the existence of sizable and statistically significant IQ differences between people from different social status backgrounds . . . must today be accepted as a demonstrated fact - at least as far as intelligence tests now in common use are concerned." (2)

This is not the place to discuss the meaning of this fact - such as, for example, the essential circularily in the original norms of tests which are constructed to differentiate groups which differ in social advantage in the first place. The point is that the use of tests and other technical procedures which operate entirely within a Probability Frame will only perpetuate the present chronic unemployability of most of the disadvantaged groups in our society.

The conservatism of the Probability Frame is its major defect. It leaves no room for growth and unexpected change. It does not allow new talents to emerge in the person's life. While it is a valid way to look at behavior if we want to predict it, it is not a creative way to look at behavior if we want to change it. It leaves us locked up in the social, educational, and economic structures of the past. A too literal application of Probability denies the American dream itself.

The Frame of Possibility. A third Frame of Reference exists for looking at a person's chances in life. It assumes that optimism has a necessary place in even the most "hard-nosed" job decision, and that without this kind of creative thinking, all kinds of Administration will stagnate.

This Frame of Reference is avoided by most personnel appraisers in our opinion. (But these same appraisers would no doubt prefer to be interviewed in regard to their own careers by someone who could and would imagine what they can become.)

Such an optimistic interviewer assumes that people can grow and become something other than what they have been. It is probably no exaggeration to say that the only real hope of the masses of disadvantaged persons is to fall into the hands of the organizations which look at a person in terms of his possibilities, and not only in terms of his past performance (the Probability Frame) or his conspicuous handicaps (the Negative Frame).

Synthesis. The joint interests of applicant and interviewer lie in giving him a job he will keep. Thus one cannot say that it is in the person's interest to ignore the probabilities, or that his handicaps will not hurt his career. We believe that all three Frames of Reference have a place in objective personnel evaluation.

An analogy might be useful here. Engineering departments in aerospace ventures have devised a planning system known as PERT, for laying out a complex plan in such a way that its time requirements would become clear. After the PERT analysis, the planner typically makes three forecasts and then combines them (3):

1. a pessimistic forecast, based on the time which would be involved if all the major planning flaws possible would jointly take place;
2. a most likely forecast, based on the most probable time for each element of the plan, combined into a single total time;
3. an optimistic forecast, based on all the foreseeable "breaks" taking place.

The formula which combines them would weight each of the three estimates and then add them. The weighting would depend on the type of forecasting, the damage in case or error, and the philosophy of the planner. For example, the weighting might be 2-6-2. The odds are greatest to reach the Moon by January 1, 1969, but we might get there by January 1, 1968 if all the breaks come our way. On the other hand, if the most serious tests all fail, it might take us until January 1, 1972. The resulting forecast would be:

$$\begin{aligned}\text{Time of arrival on the Moon} &= 2(1972) + 6(1969) + 2(1968) \\ &= 1969.4 \text{ or about April 1, 1969}\end{aligned}$$

The implications of the analogy are not difficult to see. Every decision to hire (or not) or to promote (or not) implies an estimate of the future performance of the person. The estimate can be based on one or more of the Frames of Reference. The use of racially prejudiced standards is an example of a "formula" in which the Negative Frame is weighted 100 per cent and the Probability and Possibility Frames are each weighted 0 per cent.

Disadvantaged persons, even when not victims of racial prejudice, normally receive consideration, according to the theory presented, in the Negative and Probability Frames of Reference. The formula for their evaluation might well be 50% + 50% + 0%.

The overall objective of our inquiry into the retraining and reorientation of the Frames of Reference used by decision-makers is to shift them toward the use of all three Frames. This is not to say, again, that the "proper" weighting is 0-0-100. This would be sheer sentimentalism. But we would forecast that without a shift away from the 100-0-0 and the 50-50-0 weighting systems, little can be done for the employment and promotion opportunities of traditionally disadvantaged persons.

Policies and procedures of the personnel bureaucracy

It is not our intention to accuse the "personnel bureaucracy" * of deliberately perpetuating the existence of

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* "Bureaucracy" is used here as a technical sociological term implying impersonal, rules-bound, and objective procedures for decision-making. The procedures are established by decree or custom, and are not ordinarily validated or investigated by the individual decision-maker. In this sense, "bureaucracy" may be found in both government and private enterprise. It is assumed to be especially widespread in the personnel departments of both.

disadvantaged and unequal opportunity. However, the theory just presented has basic implications for contemporary personnel practice and policy.

Amount of information. In general, it is "easier" to rule out the many occupations and positions a person cannot fill than to establish his probable successes. And it is also easier to make accurate forecasts or probable success than to make accurate forecasts of possible growth and development.

These assumptions mean that, given a very small amount of information, one should use the Negative Frame of Reference. Given a slightly larger amount, he should use the Probability Frame. And only if he has a very large amount of information should he think in terms of human possibility and potential.

An impatient, indifferent, or ill-trained personnel appraiser will therefore normally prefer to use the Negative Frame of Reference over the Probability Frame, and will prefer Probability over Possibility.

The motivations, values, and professional dedication of the personnel field will probably severely influence the implementation of the present theory and acceptance of the training methods. The reason for this is the explicit intention, in our training, of increasing the amount of information a decision-maker obtains and uses. The impatient interviewer won't bother.

"Knockout factors." Most personnel men look for a set of factors in a person's background which, when present, "knock out" the applicant from further consideration. For example, knockout factors might include: chronic alcoholism, bad debts, a prison term, lack of an engineering degree.

The use of these factors limits the information which the interviewer collects. He shortens the interview and lets the applicant go. The applicant knows in this case very well what "We'll call you" means.

A great deal more than an applicant is lost here. The appraiser loses the opportunity to learn something new. That is, the Negative Frame of Reference also "knocks out" the use of the Probability and Possibility Frames. In this sense, the Negative Frame is apparently self-validating. The interviewer gains the impression that using the Negative Frame played an economic purpose - it saved his time with an applicant who could not have done the job anyway.

The obvious hazard of appointing a reformed prisoner is, of course, that the interviewer will later be criticized for real or imagined misdeeds of the ex-convict. This adds to the popularity of knockout factors.

The list of knockout factors is long, and most of them would be found far more often among the disadvantaged groups of the population. They are sealed into the disadvantaged groups; disadvantaged persons never receive the chance to show what they can do because they do not survive long enough in the process of selection.

"Personnel standards." Most corporations and all federal agencies set certain "standards" a person must meet if he is to qualify for a given job. Standards may be set as to place of residence, age limits, education, experience, height, weight, etc.

When the standard refers to something which the person has done, such as education and experience, it is often used in conjunction with the Probability Frame of Reference. In either case, the application of standards, like the application of knockout factors, closes off the inquiry so that the interviewer does not learn very much about human potentiality. And most standards probably operate to the disadvantage of the chronically unemployed.

Having "high personnel standards" thus closes off inquiry and prevents the interviewer from learning very much about human potentiality. High standards, paradoxically, would lower the competence of personnel departments to judge the disadvantaged person. (It may also lower their competence to judge highly creative applicants for complex jobs, but that inference is beyond the scope of the present study.)

It would not follow that low personnel standards enhance the interviewer's learning. Low personnel standards could also indicate a corporation or agency indifferent to the quality of its people.

Social consequences of the theory

The theory has consequences for both applicants and interviewers, and for their interaction and communication.

1. Persons who "look bad" during the negative phase of interviewing, never get the opportunity to receive the more searching appraisal which would reveal unsuspected assets as employees.
2. Such persons do not accumulate a "good work record" and thus "fail to meet the standards" used in arriving at probability estimates also.
3. They receive a series of peremptory rejections and eventually stop looking, or lower their level of aspiration.

4. The persons who interview them will tend to shorten their interviews [note: Webster found that decisions to accept or reject candidates for officers training were made during the first four minutes of the selection interview (4)].
5. The interviewer, ignorant of the possibilities of a group of applicants who superficially "look bad" in terms of knockout factors or experience, does a poor job of interviewing them because he settles for a superficial amount of information.
6. Preferring the abbreviated selection system, he is increasingly dependent on knockout factors and personnel standards, which also save his time and avoid the risk of criticism when disadvantaged persons turn in poor performance.

The personnel bureaucracy is generally strongly reinforced in its preference for the Negative and Probability Frames of Reference by the traditions of scientific management and industrial psychology. Both of these disciplines make vigorous use of statistic proofs and probability concepts. It is not difficult to prove, for example, that years of education is correlated with performance on certain jobs.

The theory also suggests, however, that a sheer change in the quantity of information that interviewers are able to obtain and use will necessarily result in a more favorable balance among the Frames of Reference.

In the research to follow, these two factors (abilty to obtain more data in the interview, and ability to make use of the data in reaching valid inferences) are heavily stressed. The principal aim of the videotape self-confrontation procedures, for example, is to increase the data-collection skill of interviewers. The principal aim of the programed case method is to increase the "data-consumption" or amount of information which the interviewers know how to interpret.

We do not contend that these two training procedures are sufficient to overcome the enormously strong factors which produce the social consequences described above. However, given a change in the organizational environment in which personnel selection and promotion are done, we believe it feasible to re-train large numbers of Gatekeepers to make more searching, fair, and constructive evaluations of traditionally disadvantaged persons.

Reducing discrimination through self-confrontation and feedback

Two kinds of prejudice may be distinguished: expressed *attitudes* of dislike, contempt or ridicule toward a person because of his ethnic, religious, or social class background; and *actions* of "discrimination" toward a person which tend to defraud, deprive, or destroy his livelihood, property, or dignity, on the grounds of ethnic, religious, or social class background.

Curiously enough, the abundant research of prejudiced attitudes does not prove them to be linked to discrimination (5). Thus, a person who says good things about "Negroes" or "Catholics" is fully capable in the next moment of acting to deprive them of economic opportunities.

There are many persons in our society whose acts of discrimination are unconscious. They cannot change until they are made aware of what they are doing. This implies some use of "self-confrontation" in training.

A good example of this in the employment interview is the attempt of the interviewer to maintain Social Distance. Social Distance is a fundamental concept of prejudice (6), but we also link the concept to discrimination in the following way. Everyone has a scale of social preferences, which he applies constantly to people he encounters.

At the end of some interviews, the personnel recruiter will invite an engineer or manager to lunch, but he will not invite a clerk or maintenance man. There is no harm in the social preference as such. The problem is the inadvertent and obvious "signalling" during the interview that there is a great social gulf between interviewer and applicant. The interviewer does this through gesture, facial expression, and tone of voice - he "puts the other person down."

In themselves, these unconscious gestures are not ethically bad, but it is plausible to assume that they inhibit the other person and make it unlikely that he will feel free to talk and present his full qualifications spontaneously. We assume that every interviewer should learn how "rejecting" he appears to others, especially to disadvantaged persons.

A third aspect of discrimination is the amount of information one is willing to obtain in the interview, and use in making a decision about hiring or promoting a person. The information one obtains is presumably dependent on his skill in inviting or encouraging the person to talk. If an interviewer can learn what he does that cuts down on the data the other person provides, he will presumably be able to increase the flow of information.

For an extreme example, a highly prejudiced person will not accurately observe a person whom he hates, in such a way that he arrives at an understanding of him. The victim of the prejudice senses this and does not bother to express himself. Thus the vicious circle continues. The discriminator does not learn because he does not hear or observe. His failure to listen or observe inhibits the applicant.

Amount of information is probably sharply reduced by the literal application of severe employment standards. It is an easy matter to determine that a person did not complete high school, and if the job standards require a high school diploma, the interviewer quickly shortens the discussion. As a result, he learns nothing about the other, possibly compensating, qualities of school dropouts.

In brief, then, we are concerned with doing something about these three aspects of discrimination:

1. Much of discrimination takes place in the absence of prejudice. It is possible that many administrators overlook their own employment and promotion discriminating because they believe their attitudes favorable.

   IMPLICATION: a training procedure is needed which confronts the trainee with his own actual decisions.

2. The expression of social preferences and social rejection during the interview probably inhibits the applicant.

   IMPLICATION: training should be designed which makes the trainee aware of the effects of his social preferences upon the persons he is interviewing.

3. Career decisions which are based on limited data are poor decisions, and these are in general the kinds of decisions which are made about disadvantaged persons. In general, personnel administrators do not obtain much information about disadvantaged persons before rejecting them.

   IMPLICATION: training should be designed which teaches the decision-maker to obtain and use more data before making decisions about jobs and promotions.

In general, these three kinds of training objectives call for "self-confrontation" and feedback: setting up actual interviewing situations, and actual data review situations. These should be organized in such a way that the trainee, administrator, or manager, can see the results of what he himself does.

It is anticipated that such training will be resisted by personnel bureaucracies in that, by definition, they are not oriented to obtaining feedback. For example, the bureaucratic manager is defined as one who applies a rule, not as one who seeks a result.

II. Training Methods for Changing Interviewing and Decision-Making

Interviewing paradox

What is known of interviewing practices in industry does not inspire us with confidence. In 1949, Wagner summarized 106 articles on employment interviewing; only 25 of them reported actual results, which were in general inconclusive as to the validity of decisions made during the interview (7).

The evidence has not substantially changed since that review, according to Dunnette and Bass in 1963 (8). England and Patterson called for a moritorium on more books on interviewing until there should be more evidence as to its value (9).

At the same time, several surveys have established that the employment interview is the most frequently used data collection procedure in industry (10). The paradox thus arises that the most popular form of appraisal is the one which has the least evidence of support of it.

It would be easy to suggest dropping the interview, as a solution to the problem of prejudice and discrimination, but for these reasons:

1. The only alternatives to interviewing are the use of the application form without meeting the applicant, and the making of employment decisions on the sole basis of tests.
    a) Application forms, which primarily summarize past experience and education, will continue to put disadvantaged persons at a disadvantage on the job market.
    b) Testing, if anything, deepens the disadvantage of the disadvantaged person on the job market.
2. The interview and the interviewers have not been subjected to the same amount of quantitive analysis and improvement from which the personnel test has benefitted. It is quite possible that research and development funds should be poured into this aspect of the employment process.
3. Even if the employment interview were eliminated as a factor in initial hiring, the subsequent career of the employee will be very much subject to the evaluation of him reached by his immediate superiors, during their mutual interaction on the job. There is no real escape from the direct interaction between the disadvantaged persons and the persons who will make basic decisions about promotions, pay, and careers for them.

For these reasons, our goal is to devise ways to improve the interaction between the disadvantaged person and the persons who make decisions about him. The initial employment interview is only the first of many such contacts or interactions he will have during his career.

Methods of improving interviewing

Bearing in mind that our basic aim is to reduce discrimination at the point of interviewing, how can this be done through training the interviewer? Consistent with our earlier analysis, we reject the traditional methods of education, policy, on-the-job experience, and moralistic appeals as adequate methods for reducing discrimination.

Self-confrontation. As indicated in the analyses of discrimination above, we set three goals or dimensions for improvement of interviewing:

1. Providing the interviewer with the opportunity to observe the way in which he arrives at a decision about the person he is interviewing, so that he can see discrimination (if there is any) actually at work, and presumably end the pretense that he is open-minded.
2. Training the interviewer to operate at the optimum Social Distance, rather than to treat the applicant as supplicant, inferior, or "thing."
3. Increasing the amount of information on which the interviewer bases his decisions about a person, thus precluding discrimination.

The technique of Self-confrontation refers to the re-hearing or re-observation of an interview, by the use of videotape recording playback, audiotape recording playback, or similar technical device. Eachus (11) has shown that military personnel who are being trained to serve in a foreign culture will progressively improve their ability to handle a simulated interpersonal situation in that culture, by the use of videotape recording playback. The use of audiotape playback is not new in the training of interviewers, although to our knowledge its impact has not been tested.

In general, the research questions to be posed about the videotape and audiotape playback methods of Self-confrontation are in the form, "What will the interviewer be able to observe about himself through such 'Self-confrontation?'"

Sensitivity training. Probably the most widely used method of changing human interaction patterns is "sensitivity training," in the sense of the term used by the National Training Laboratory in Bethel, Maine. About this form of training, we pose these questions:

> 4. Can the "T-group" method be adapted so that the two-person interaction characteristic of interviewing is the focus of the T-group training, rather than the group itself?
> 5. If the T-group method were used in conjunction with videotape playback and similar techniques of Self-confrontation, would it contribute to the impact of the Self-confrontation?

In this feasibility study, T-groups were investigated through discussion with consultants with regard to these two questions.

Role-playing and simulated interviewing. The commonly employed method of role-playing could readily be adapted to the teaching of interviewing, and is probably in widespread use in industrial management training. It represents the same basic processes described under Self-confrontation, but the material is not replayed directly. It may be discussed and analyzed immediately afterward, but the discussants rely upon their recall rather than direct observation.

Thus, role-playing represents a control procedure which should, in theory, establish the impact of Self-confrontation itself. In the feasibility study, the possible values of role-playing alone were not explored directly. Student reports of the Self-confrontation experience were, however, analyzed with reference to the question of whether sheer simulation alone without replay is enough to produce change. Eachus (11) previously found that it does not, and numerous experiments with human learning suggest that "feedback" sharply increases the learning rate.

The dilemma of decision-making. Studies of personnel decision-makers validity do not, as in the case of interviewing research, inspire confidence in their competence. For example, Webster (4) reports that Canadian Army personnel officers reach a decision about an officer candidate after only four minutes of interviewing. Numerous studies of psychological assessment indicate that the intuitive decision-maker has no native superiority in accuracy over the far less expensive and more objective test (12).

The dilemma is posed by the impossibility of ever truly eliminating the apparently fallible decision-maker. Eventually, the career of a person will be influenced by someone's decision. No objective test can replace a performance rating, for example.

Our resolution of the dilemma is to learn how to improve this type of decision-making. If as much research had gone into intuitive decision-making as has gone into the development of testing, for example, the poor results cited above by Webster and others might eventually be reversed.

Methods of improving decision-making

While the interaction pattern might be improved through the previous designs, it is possible that the final decision about the disadvantaged person would still represent discrimination. The methods of training interviewers in decision-making are assumed to require additional techniques.

The goals or dimensions of change in decision-making which have been suggested are:

1. To increase the decision-maker's ability and willingness to evaluate an applicant in terms of his potentiality, as opposed to merely applying "job standards" to him, or merely making a passive projection that he will perform in the future as he has in the past.
2. To encourage him to make use of as valid a balance among these three Frames of Reference as can be achieved.

3. To train him to make valid use of more information in reaching decisions, as opposed to using abbreviated substitutes for information (such as highly prejudiced assumptions about "Negroes" or other minority groups).

Programed cases. The programed case, in previous investigations (13) has been shown to produce measurable changes in the direction of valid use of more information about applicants. The basic theory of the programed case is that discrimination is "expedient" and represents indifference to information.

The expediency theory of discrimination, according to Bradbury (14) portrays discrimination as occurring when the discriminator thinks it in his interest. Thus, a real estate agent discriminates because he thinks he has more to gain from discrimination than from open housing.

The information theory of discrimination, as we espouse it here, portrays discrimination in employment as occurring because the discriminator does not know how to use, or is unwilling to use information about an individual in arriving at a hiring or promotion decision. Therefore, he resorts to stereotypes or assumptions about "all Negroes," "all Catholics," or "people over 45" in making his decision.

If both these theories are valid, can a procedure be devised which will make it more expedient to use information? In the programed case, a miniature "reward system" is involved which is related to the information used by the inference-maker. Repeatedly, the trainee is asked to review data about a person; then he is asked to make inferences from the data; finally, he is given "feedback" regarding the validity of each inference.

The theoretical interpretation of this feedback is that valid inferences are rewarded and invalid ones are penalized insofar as the trainee likes to be told he is succeeding and dislikes being told he is failing.

Programed personnel data. The programed case simulates the situation in which an interviewer talks to a person about his past history, but does not simulate the review of other kinds of personnel data. For this latter purpose, a new kind of programed material was devised in which personnel appraisers looked at actual job histories, test data, medical findings, and then were asked to forecast performance ratings.

When feedback (presenting the actual performance ratings) is given the trainee, the effect should be much the same as the programed case feedback. However, the programed personnel data are more closely related to such concepts as "job standards," "knockout factors," etc.

For example, it was contended earlier that the literal-minded use of job standards suggests the Negative and Probability Frames of Reference, and that this usage makes it difficult for the disadvantaged person to get a thorough evaluation.

The theory is that programed personnel data will "reinforce" (make more expedient) the valid interpretation of data, and thus encourage the more complex, subtle Frames of Reference in the evaluation of people for jobs.

Traditional methods of training people in decision-making. For contrast with the above training methods, the following methods can be considered for their impact and feasibility:

- -- Lecturing
- -- Textbooks (in personnel, assessment, etc.)
- -- Pure case studies
- -- Special projects, outside readings.

Among these, we will comment at this point upon pure case studies as a training device. In such a case study, the student reviews the data about a person or situation (presumably authentic data) and presents his analysis and inferences in a group of other persons who have reviewed the same case. Presumably he tests his analyses and inferences by comparison with those of other students.

The difference between the pure case study on the one hand, and the programed case on the other lies in the factual feedback. In the programed case, the trainee is asked to make forecasts of facts which either occurred or did not occur. Feedback consists of informing him of the truth or falsity of his forecast. In the traditional, or pure narrative case, "feedback" is social rather than factual. The trainee compares his judgments with those of other trainees.

III. Methodology and Hypotheses

The proposals to train decision-makers to interact with disadvantaged persons and to evaluate them more appropriately may be summarized in terms of a proposed "Interpersonal Laboratory."

This "Laboratory" provides a workshop experience for the decision-maker in which he learns systematically by doing, receives "feedback" measurements of progress wherever possible. The possible components of this workshop are:

- videotape recording of interviews and playback
- audiotape recording of interviews and playback
- sensitivity training
- role-playing (simulated interviewing)
- programed cases
- programed personnel data
- traditional methods of training such as lecturing, textbooks in decision-making, case studies, etc.

The feasibility of use of such components would require two broad kinds of data collection:

1. development and application of some elementary measuring devices, to obtain rough statistical tests of the validity of the conceptions of interaction and decision-making presented in the foregoing sections;
2. use of the equipment and training procedures with a group of trainees, in an actual educational setting, to determine their reactions, the performance of the equipment, and the general costs which would be involved in larger scale programs using the equipment and the procedures.

The specific questions which were posed of each type, and the procedures with which we attempted to answer them in this pilot study are presented below.

Self-confrontation components: procedures

Videotape recording and playback. We borrowed, from SONY, a Videorecorder (Model CV2000), a Video camera (Model CV2000), and an eight-inch moniter, for four months and installed it in an office in Hamilton Hall, on the American University campus. Two graduate students were instructed in the operation of the equipment and a class of 45 graduate and senior students were scheduled to conduct and receive two interviews which were recorded on videotape.

After each such interview, the trainee interviewer answered some questions in a standardized notebook about the applicant, critically evaluated his own performance, and then the interview recording was replayed. He then re-evaluated his performance.

The interview was conducted in the presence of two other trainees: one the Applicant, and the other an Observer. Each of them also answered questions about the interview immediately after the close, observed the playback, and then answered some additional evaluative questions about the interaction which had just taken place.

The purpose of the interview was to establish the qualifications of the Applicant for a job. Previous to the interviewing laboratory, each student had chosen three jobs for which he would be interviewed:

-- a dream job, for which he was not now well-qualified, but which he hoped one day to achieve;
-- a good job, for which he felt well-qualified now and which he would like to have;
-- a marginal job which he would accept if no other job were available.

These jobs were randomly varied as the purpose of the interview. The Interviewer was not informed before the interview as to whether the job was the dream job, good job, or marginal job, but was told what the job was by the Applicant as the interview began.

Interviewing took place in the afternoons and evenings, on a schedule worked out by the trainees during the months of November and December 1966. The questionnaires completed by each of the three participants in the interview (Applicant, Observer, and Interviewer) are shown in Appendices A, B, and C.

The total of interviews conducted by each trainee was three, of which the first and third were normally videotaped. The middle interview was normally audiotaped (see next section). In addition to conducting three interviews, each trainee "applied" for the three jobs mentioned, and observed three interviews. Thus, each trainee who completed the cycle properly had a total of nine interviews. As each was ten minutes in length, a total of 90 minutes of participation in interviewing was involved.

As only the Interviewer was on the video screen, there were at most two 10-minute sections of self-observed interviewing periods, and one 10-minute section of self-heard interviewing. There were three 10-minute sections of self-heard performance as an Applicant.

Audiotape recording and playback. We purchased a SONY (Model TC-200) two channel tape recorder and installed it as alternative equipment in the same interviewing space as the videotape recorder. The same group used this equipment, in a procedure identifical to that with the videotape.

In the series of three cycles (each cycle containing one period as Interviewer, one as Applicant, and one as Observer), the middle cycle used only the audiotape.

Sensitivity training. In this pilot study, we did not attempt to use sensitivity training in conjunction with the above equipment. However, we reviewed the use of this equipment and the other procedures (reported below) with several consultants familiar with sensitivity training, notably Dr. Stewart Shapiro of Los Angeles, and will discuss the possibilities of integrating a sensitivity training program with the present procedures.

The "T-group" procedures have been thoroughly described in the publications of practitioners and no attempt to repeat these descriptions will be made here. In general, sensitivity training sets up a miniature social system or small group over a period of several days. The interaction of the participants is the "training material" and they literally teach themselves to become more aware and perceptive of their relationships under the broad guidance of the "trainer."

Role-playing. To the extent that the procedure described under videotape and audiotape involved simulated interviewing, it could be classified as role-playing. However, role-playing as usually employed as a training device does not provide direct feedback. Typically, trainees enact a pair or group of roles and later discuss their experiences and observations (15).

Presumably, the videotape and audiotape procedures provide the training benefits of role-playing, but the converse would not necessarily hold. For this reason, we have not attempted any additional evaluation of role-playing at this point. Rigorous experimental proof of the values of videotape and audiotape playback should, however, eventually use role-playing procedures as a control group, to determine that playback (rather than the simulation or practice alone) is essential to the training benefits.

In the one such experiment of which we are aware, Eachus concluded that playback has markedly superior advantages over simple simulation or role-playing (11).

Self-confrontation components: measures

We would anticipate that the creation of a relationship which encourages the Applicant to talk freely would require the Interviewer to operate at the proper Social Distance from the Applicant. For this reason, immediately following the videotape and audiotape interview, the Applicant is asked what Social Distance he would accept from the Interviewer with whom he has just been interacting. The scale point to which he assigns the Interviewer is called the Social Distance score. The scale (see Appendix A, item 3) is:

-- welcome as a member of the family
-- enjoy having as a close friend
-- welcome as an associate on the job
-- willingly work for
-- accept only as a casual acquaintance
-- rather avoid

We would also anticipate that the close interaction implied by the Applicant if he assigns either of the first two scale points to the Interviewer would make it more possible for the Applicant to say, at the conclusion of the interview, that the Interviewer has arrived at an understanding of him as a person. Thus, the Applicant is asked how well understood he feels (see Appendix A, item 2):

-- as well as a close friend
-- well enough that I would be willing to ask his advice on this job
-- reasonably well, but not close
-- superficially
-- not too well
-- not at all

The interaction model also implies that a disadvantaged person receives less attention by the interviewer, and a less adequate and thorough evaluation. In the present study, the range of qualifications was made to vary deliberately by requiring the trainees to apply for three jobs, two of which they felt qualified for, and one of which was a "dream job," over their heads as far as present qualifications were concerned.

The Interviewer was asked to judge the qualifications of each Applicant. This score (see Appendix B, item 5) is called Interviewer's Rating of Applicant. We would anticipate that the better the rating, the more adequate the interview.

The Applicant was also asked to judge his own qualifications. This score (see Sppendix A, item 9) is called Applicant's Self-Rating. The interaction model implies that a person who feels disadvantaged will be more difficult to interview, and will experience a greater degree of Social Distance.

The videotapes of the Interviewers were later re-run before a panel of three objective Judges. The panel viewed each interview and rated it on a nine-point scale in response to the following three questions (see Appendices D and E):

1. Would you want to be interviewed by this person for a job you want very much?
2. How well did the Interviewer help the Applicant present his qualifications for the job?
3. How well do the participants (Interviewer and Applicant) know each other at the end of the interview?

The ratings of the three Judges were summed into a total score of Interviewer Competence. The interaction model suggests that Interviewer Competence should be lower with less qualified applicants, and that Social Distance should be related to Interviewer Competence.

In addition to those specific quantative hypotheses, opinion and qualitative data were obtained of the feasibility of use of each of the components which are designed to train interviewers to interact more effectively.

Self-confrontation hypotheses

The following measurements were described in the section above:

- Social Distance perceived by the Applicant
- Degree to which Applicant feels understood
- Interviewer's rating of Applicant
- Applicant's self-rating
- Interviewer competence (rated by objective Judges)

The interaction model implies that all these variables are interrelated. This would generate ten possible correlations (5 x 4 divided by 2) plus five reliability coefficients.

In addition, the Observer's rating of the Applicant's qualifications was compared with the Interviewer's ratings. One question raised here was whether they agreed in their judgment of Applicant qualifications. A second question was whether the Interviewer and Observer differed in degree of favorableness in rating. Social Distance theory, and the analysis of bureaucratic modes of interaction presented above, both imply that participant observers are more favorable than objective observers.

This implication follows from the earlier hypothesis that interaction brings people closer, and the closer the two persons, the more favorable the opinion of each other. It also follows from the definition of bureaucratic interaction as that which is more impersonal and socially distant.

In the videotape interviewing, the objective observer was the "bureaucratic personnel interviewer" and the actual Interviewer was presumably less impersonal and more interactive.

The specific hypotheses which follow from the remarks above are:

1. That Social Distance, the feeling of being understood, [redacted] qualifications of the Applicant as judged by the Interviewer, the qualifications as judged by the Applicant, and Interviewer Competence (judged by outside observers) would all be interrelated.
2. That the Interviewer and Observer would differ in their attitudes toward the Applicant.
3. That qualitative analysis of trainee reports would reveal the general strengths and weaknesses of the videotape and audiotape playback methods.
4. That there is enough agreement upon what is meant by "good interviewing" among trainees and observers that the measurements can be compared among them.

Decision-making feedback components: procedures of administration

Programed case feedback. The manner of construction of the programed case is described in prior publications of the Principal Investigator (16). In general, a programed case is a career or life history divided into segments which the trainee is progressively shown. After each additional input of data, he is asked to infer the subsequent input. After he records his inference, it is confirmed or denied.

In this manner, the trainee proceeds through each case. Uaually, fifteen inferences with immediate feedback after each inference are required. The sum of correct inferences is his Prediction score in that case. In a series of 12 programed cases, 180 inferences would be made.

Two types of scores are involved in the analysis of what is learned:

1. rate of learning during the series of programed cases (changes in levels of accuracy of inferences);
2. rate of learning during individual cases (changes in level of accuracy within cases).

In the decision-making model presented earlier, amount of information and feedback were postulated as of major importance in explaining discrimination. In general, discrimination is hypothesized to take place when the decision-maker does not or will not collect enough information to make predictions about the applicant as an individual. Feedback is postulated as a way of rewarding decision-makers for collecting more information (or penalizing them for not collecting enough).

In this phase of the feasibility research, we are presenting analyses of data collected in earlier studies. The populations involved are:

- -- Business Administration students; 12 programed cases were administered during 1964 and 1965 as a part of a course in Personnel Management. N = 128.
- -- Korean and Americans in Korea; five programed cases were administered (in translation to the Koreans) in 1966. N = 295.

Personnel data feedback. Application blanks, test data, interviewing impressions, and other conventional personnel data on each of 10 Sales Supervisors were collected in a previous investigation in industry. In 1966, these sets of personnel data were placed in "programed form" and administered to 45 students in a course in Personnel Selection at The American University. Students completed these cases at the rate of two a week. Each required about 30 minutes of study.

Each case was divided into three parts: the data, the forecast, and the feedback. The data consisted of a written report with the content listed in the paragraph above (see Appendix F). The student was asked to forecast the performance rating of the Sales Supervisor on a four-point scale. The feedback given consisted of the Sales Supervisor's actual performance rating originally given in industry.

Decision-making components: hypotheses

Programed cases. The key question of the programed case method is whether inference-making and forecasting of human performance can be changed by providing feedback as to its accuracy. It will be recalled that in the bureaucratic model of decision-making, the stress is upon the activity of adhering to rules, applying standards, and selecting personnel. The bureaucratic decision-maker shows no interest in finding out the results of his decisions, in computing his "batting average," and adjusting his methods.

To substitute another model of decision-making implies that we can find some way of training decision-makers to check their own accuracy against fact. The hypothesis based on this analysis is :

1. that feedback of fact raises the level of accuracy of forecasting in general

A second deficiency of the bureaucratic personnel model is its preference for simple "standards" and indifference to the complexity of individual persons. To correct this model and thereby to substitute a more humanistic way of thinking about applicants implies that the decision-maker becomes sensitive to larger amounts of information about individuals. It is assumed that the second measure derived from programed case inference-making accuracy (rate of learning within individual cases) measures this sensitivity to individuals. The hypothesis is:

2. that feedback of fact raises the level of accuracy of forecasting within individual programed cases.

Inasmuch as the problem of discrimination arises when persons of one cultural group attempt to appraise applicants from another such group, we thought it relevant to ask whether the programed case feedback method has generality across the cultures.

This means, for example, that one of the reasons discrimination arises is that the white decision-maker does not understand the culture, custons, and orientation of the Negro applicant; or Negroes do not understand Puerto Ricans, and so on.

In effect, the same hypotheses raised above were raised with respect to the programed case performance of several Korean groups (male college, female college, male high school, female high school, and soldier).

Programed personnel data. One of the problems with the programed case method is its depth. The decision-maker reviews the entire life history of the person in the case. But in everyday administration, the decision-maker may only have the chance to learn relatively stereotyped data from personnel forms and similar sources.

The score obtained from the programed personnel data is sum of correctly forecast ratings. The following questions are raised:

1. Can trainees make valid forecasts in these sets of data?
2. Is there generality from one such data set to another; that is, is there a general skill at making forecasts of on-the-job performance?
3. Is this skill correlated with the inference-making skill measured in the programed cases?

In addition to these quantative hypotheses about the effects of feedback, trainee reaction to programed personnel data as an instruction method was sought.

A procedure for the evaluation of training

The questions to be answered in the evaluation of training fall into these groups:

1. Utility: a useful training design accurately analyzes the problem it purports to solve.
2. Validity: a training program is valid is it changes the behavior it is supposed to change.
3. Rationality: a rational design is one constructed along lines suggested by Principles of Learning established in research and confirmed in practice.
4. Scientific promise: a training program has scientific promise when its design and principles of construction are conceptually adequate.
5. Feasibility: a training program has practical utility if it can be conducted within the limitations of the available administrative and physical environment.
6. Economy: a training program is economic when its costs are proportional to its benefits.

7. Manageability: a training program is manageable only when it provides feedback regarding its utility to the trainer, administrator, training designer, and perhaps to the trainee himself.
8. Persistence: a training program has persisting effects only when its objectives are specified clearly enough to permit follow-up in the working environment of the trainee.

A training program is "effective" to the extent that it meets these criteria. These demands are no doubt far more rigorous than most training programs can meet. It is suggested that training administration will progress at the rate at which training is designed and re-organized to meet them.

As stated, the criteria are only broadly useful as guides. However, Appendix G presents the more specific questions under each of the eight categories, by which a particular program can be measured or evaluated.

IV. Findings in Regard to Self-confrontation and Feedback

Self-confrontation

One of the principal contentions of the project has been that applicants are affected by the Social Distance at which the interviewer operates.

1. There is a correlation between the applicant's rating of the Social Distance he desires between himself and the interviewer, and the impression that he has that the interviewer understands him. This correlation of .53 is significant at less than the .01 level, with a population of 83 interviews among Business Administration students (see Table I).

2. This relationship is also found in another form: an opinion questionnaire answered by 25 federal government supervisors, in which they described the characteristics of a co-worker whom they believed understood them better than another co-worker. The Chi-square between Social Distance and Understanding is 7.0, with 1 d.f., significant at less than the .01 level.

3. We found a smaller, but significant tendency by interviewers to regard applicants as better qualified when the applicants feel "closer" to the interviewer. This correlation of .43 is significant at the .01 level, with a population of 36 Business Administration students.

4. We found a small, but significant tendency for interviewers to do a better job (as judged by outside raters who evaluate the videotape replay) when the applicant feels better qualified. Business Administration population, N = 45, bi-serial r = .33, significant at the .05 level.

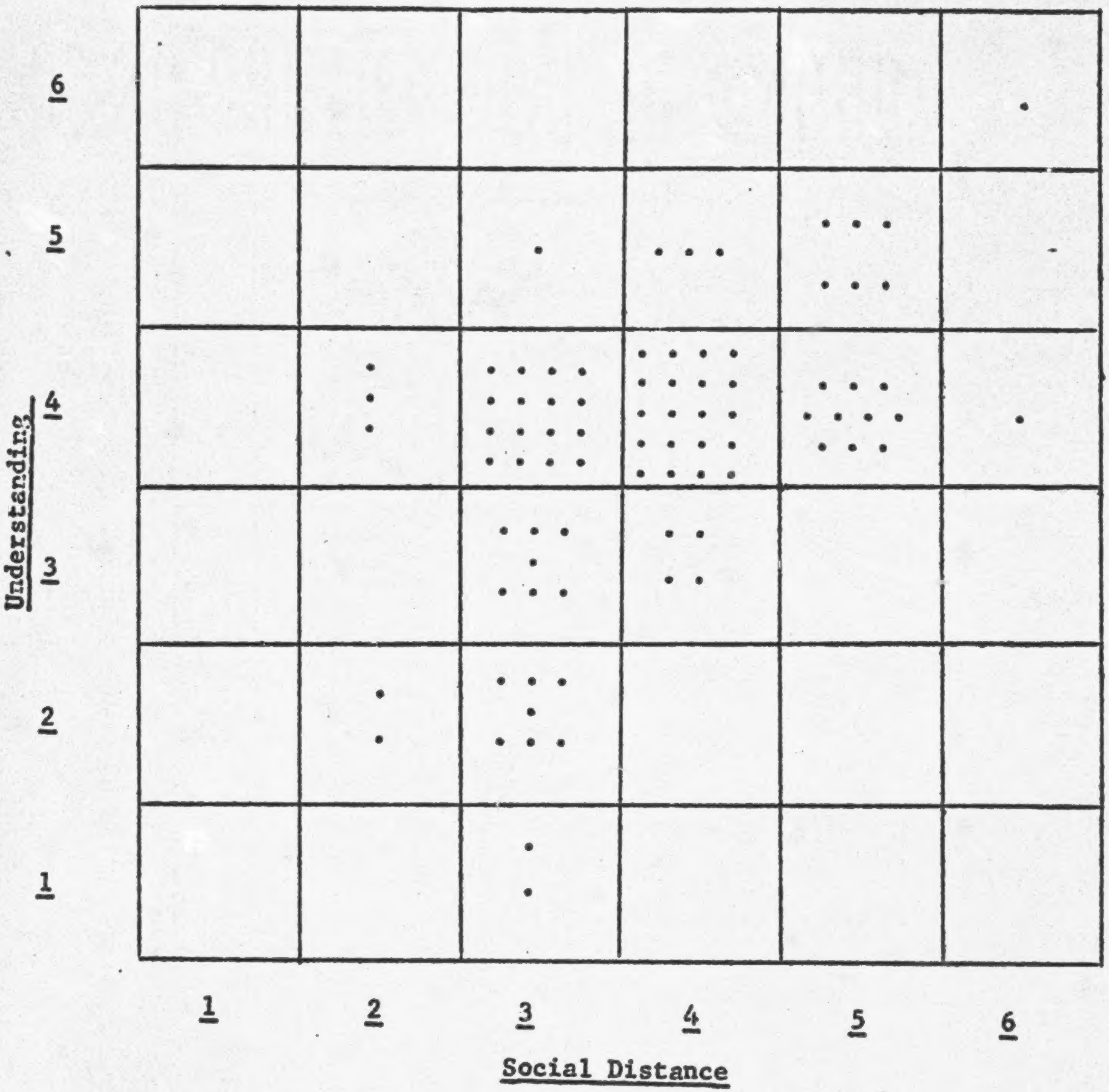
5. We found that interviewers also do a better job of interviewing applicants they consider better qualified. This correlation is .32 (bi-serial r); Business Administration population, N = 48, significant at the .05 level.

6. Table II shows that objective judges consider the interviewing better when the applicants rate the Social Distance as closer, and feel they have been understood. These correlations are .29 (Pearsonian r) and .62 (bi-serial r). The N is 44 (Business Administration students).

A second hypothesis was that the Self-confrontation method could be taken directly into the training situation, and the following tables represent student reaction to the use of the method during the fall of 1966.

TABLE I

Comparison of Social Distance and Understanding



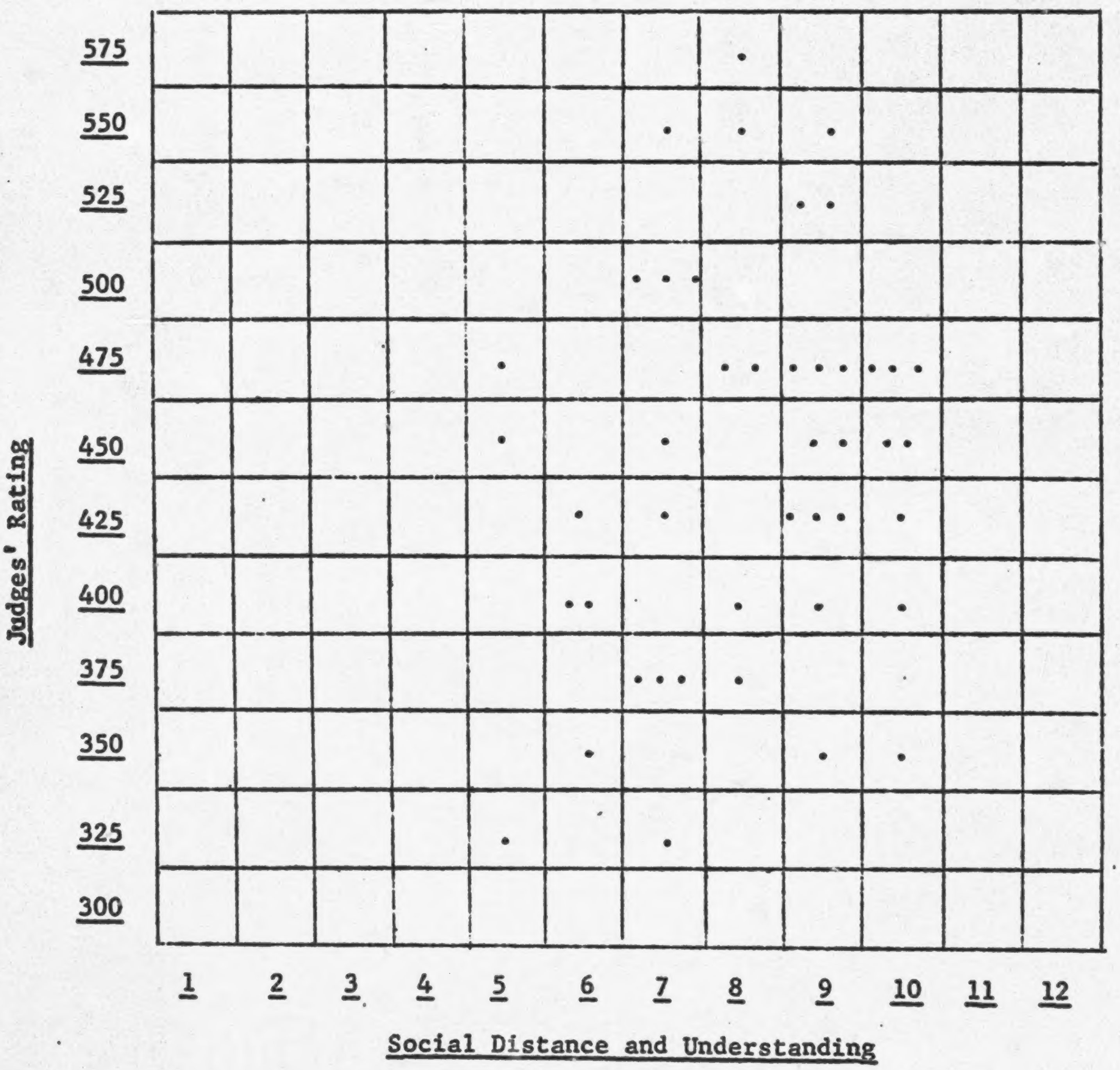
Legend: See Appendix A, items two and three, for specific questions asked of applicants. The scores were assigned values from one through six, beginning with the last choice in each item, representing the least Understanding and the greatest Social Distance.

Understanding . . . . Item 2, Appendix A
Social Distance . . . Item 3, Appendix A

N = 83
r = .53

TABLE II

Comparison of Independent Judges' Rating of Interviewing Competence and Applicant's Conception of Social Distance and Understanding



Legend:

Social Distance and Understanding . . . Combined Scores of items two and three, Appendix A, with values assigned as described in Table I.

Judges' Rating . . . Sum of all ratings of the interview; each Judge and each question, with scores converted (see Appendices D and E).

N = 44
Pearsonain r = .29
Biserial r = .62

7. Table III shows a rather clear student preference for the Self-confrontation laboratory as a method of learning in a course in personnel selection. The rank of videotape playback was one (1) among seven components used, and the audiotape playback was three (3).

8. Figure 1 shows the kinds of self-criticisms which students made, after viewing their interviewing on the playback. These self criticisms are shown on a scale of interviewing competence. The average student made 3.7 codable criticisms. The criticisms tended to be extremely favorable or unfavorable. N = 36 students.

A third hypothesis was that a definite image of "good interviewing" exists among different observers, so that interviewing competence as recorded on the videotape can be quantatively studied.

9. Table IV shows the correlation between instructor and a group of students, following one semester of instruction in the nature of personnel selection. The correlation is .51, significant at less than the .01 level. N = 60 statements.

10. Table V shows the inter-judge agreement, obtained when videotapes of interviews are later replayed. These correlations are all in the 50's and 60's. They are significantly different from zero, at less than the .01 level, for N = 57 interviews.

11. Table VI reports a matrix of Q-sort correlations among the inter-student ratings in a personnel selection class. Correlations at the "managerial image" pole vary from .54 to .72 and at the "counselor image" pole from .56 to .82.

12. Government supervisors were asked to compare the image of "a co-worker who understands you very well," with the image of a co-worker frequently seen but "who does not understand you as well." A Chi-square was obtained (5 d.f.), indicating that the two images differ systematically. The finding is significant at less than the .01 level.

13. There is a relationship between judges' ratings of videotape recordings and the age of the interviewer, in the range of 18 to 40 years. This correlation of .43 is significant at the .02 level. The N was 32 Business Administration students.

Decision-making

The first decision-making hypothesis was that people can be trained to make valid inferences about the behavior of others, using the programed case method of instruction.

14. Table VII shows the learning curves of 128 Business Administration students. These curves differ significantly from chance at the .001 level. [These data were gathered before the current project (13).]

Table III

Preferred Learning Methods; as Ranked by Students

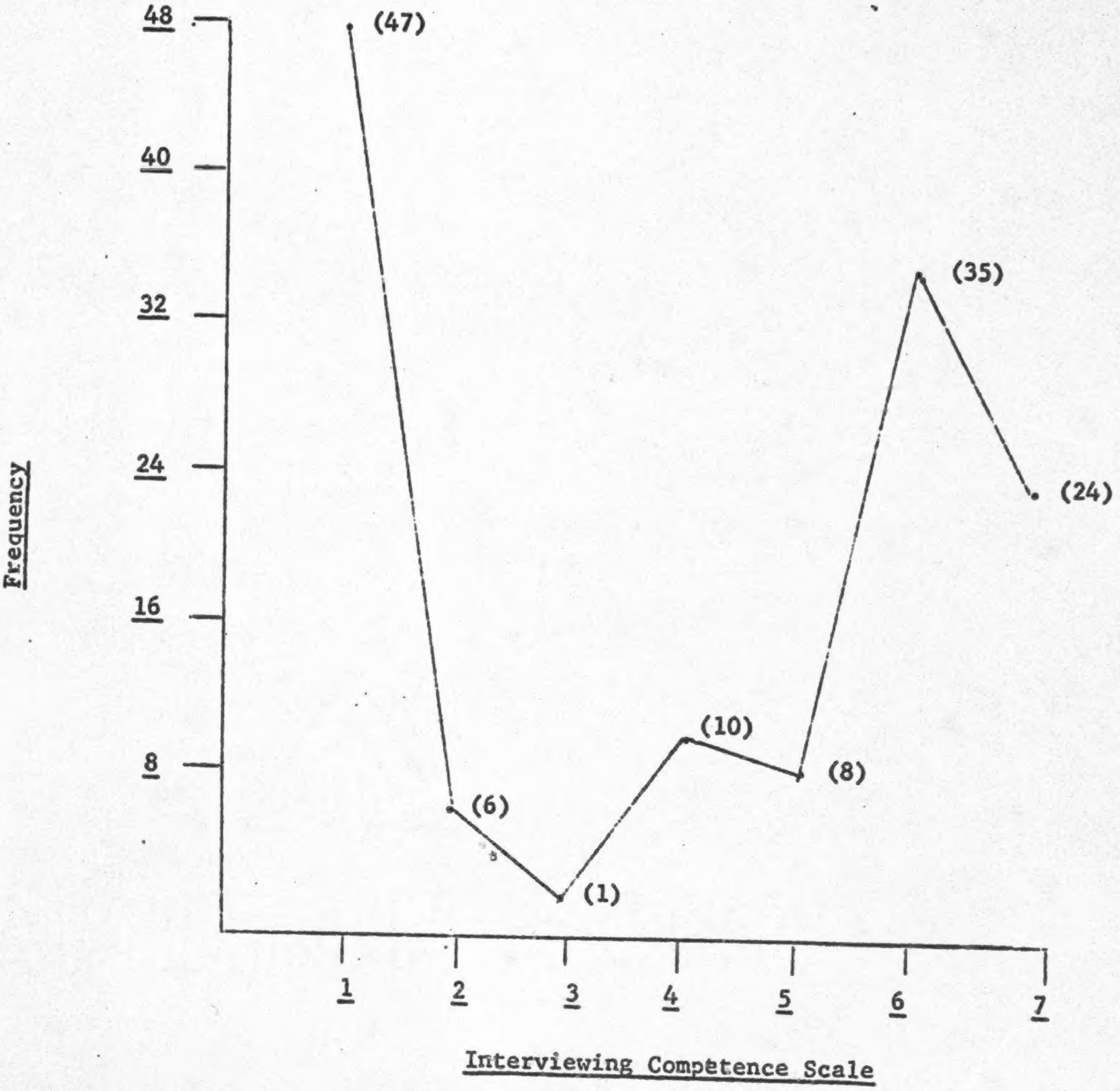
Rank	Method	Average Rank Score (Weighted)
1	Videotape	2.9
2	Classroom Lecture	3.2
3	Audiotape	3.5
4	Paper prepared as part of course assignment	4.1
5	Textbook	4.2
6	Discussion on Personnel Data	5.1
7	Programed Personnel Data	5.2

Legend: Students were asked to rank these seven methods of learning at the conclusion of a course in personnel selection, assigning a value of one (1) to the most preferred method . . . and a value of seven (7) to the least preferred method. The weighted average rank score was computed on the basis of the number of students rating the particular method.

FIGURE I

Self-Criticisms of Interview Competence

(as reflected in reports of students which were written after viewing the videotape replay of their interviews)



Legend: Comments by each student in his self-critique evaluating his interviewing competence were placed into a seven-point scale, with a value of one(1) representing the best interviewing competence . . . and a value of seven (7) representing the poorest interviewing competence. This figure shows the frequency of self-criticisms for each scale value as reported by 36 students.

TABLE IV

Comparison of Instructor's and Students' Evaluation of Interviewing Competence

Students

7				•		• • •	• •
6				• • •	• • • •	• • •	• •
5			•	• • •	• • • •	• •	
4	•	•	• • •	• • •	• • • •		
3	• • •	• •	•	• •			
2	• •	• •	• •				
1	•	• • •	• •				
	1	2	3	4	5	6	7

Instructor

Legend: This table compares the ratings by the instructor and the students (average rating thereof) of events occuring during interviews, using a seven-point scale in which a rating of one (1) represents the best interviewing competence . . . and a rating of seven (7) represents the poorest interviewing competence.

r = .51
N = 60 Interviewing Events

TABLE V

Inter-Judge Agreement in Evaluation of the Interviewer

Judges	Agreement
J-1 and J-2	.66
J-1 and J-3	.55
J-2 and J-3	.61

Legend: This table shows the correlation coefficients as a measure of inter-judge agreement in their ratings of each interviewer. The three independent judges viewed the videotape recording of each interview. They are identified here as J-1, J-2, and J-3, and the three possible comparisons (correlation coefficients) are shown.

TABLE VI

Correlations Regarding Different Types of Interpersonal Role Competence

	A	**B**	**C**	**D**	**E**	**F**
A		.66	.02	.51	.47	.72
B			.19	.49	.69	.61
C				.59	.56	.46
D					.82	.59
E						.54
F						

Legend: This matrix of rank-order correlation coefficients (rho's) reports the measure of inter-student agreement in rating their fellow students with respect to competence in the following roles, as represented above.

A. Whether you would want to have him manage a company which you own.

B. Whether you would want to have him as your mayor.

C. Whether you would want to discuss your course problems with him.

D. Whether you would want to discuss your career problems with him.

E. Whether you would want to discuss your family problems with him.

F. Whether you would want to have him as a consultant to your company.

TABLE VII

Improvement in Validity With Increasing Experience

Accuracy Percentages	Ordinal positions of cases 1 & 2	3 & 4	5 & 6	7 & 8	9 & 10	11 & 12
M	44%	53%	55%	54%	59%	61%
SD	11.4	15.6	15.5	19.3	15.0	16.3

Legend: The increase in accuracy that is reported in this table, as a result of programed case instruction, includes a case-difficulty control; in that the programed cases were administered in various orders to control the contingency that "easy" cases would inadvertently have been placed last in the series. The difference in accuracy between the first two and the last two cases is significant at the .001 level.

N = 128 students

15. Table VIII reports the reliability of individual programed case scores, using the split-half method of computation. This figure is .75, significant at the .01 level, for N = 44 middle-level industrial managers (16).

16. A relationship was found between programed case decisions and decisions using actual personnel data. This relationship is .55, which is significant at the .001 level.

17. Table IX describes the relative frequency with which students report applications of several techniques of training in decision-making. Approximately 3.2 times as many applications were reported spontaneously from the programed case laboratory portion of the course, as from the reading of the textbook.

A second hypothesis raises the question as to whether persons in other cultures can learn to make valid inferences about behavior, using the programed case method of instruction.

18. Measurements were made of inference-making of Koreans responding to translations of programed cases. Koreans were able to make valid inferences as well as Americans.

19. The ability of Korean subjects, especially college level Koreans, to react validly to increments of data about individuals, was similar to that of Americans, although possibly not as great.

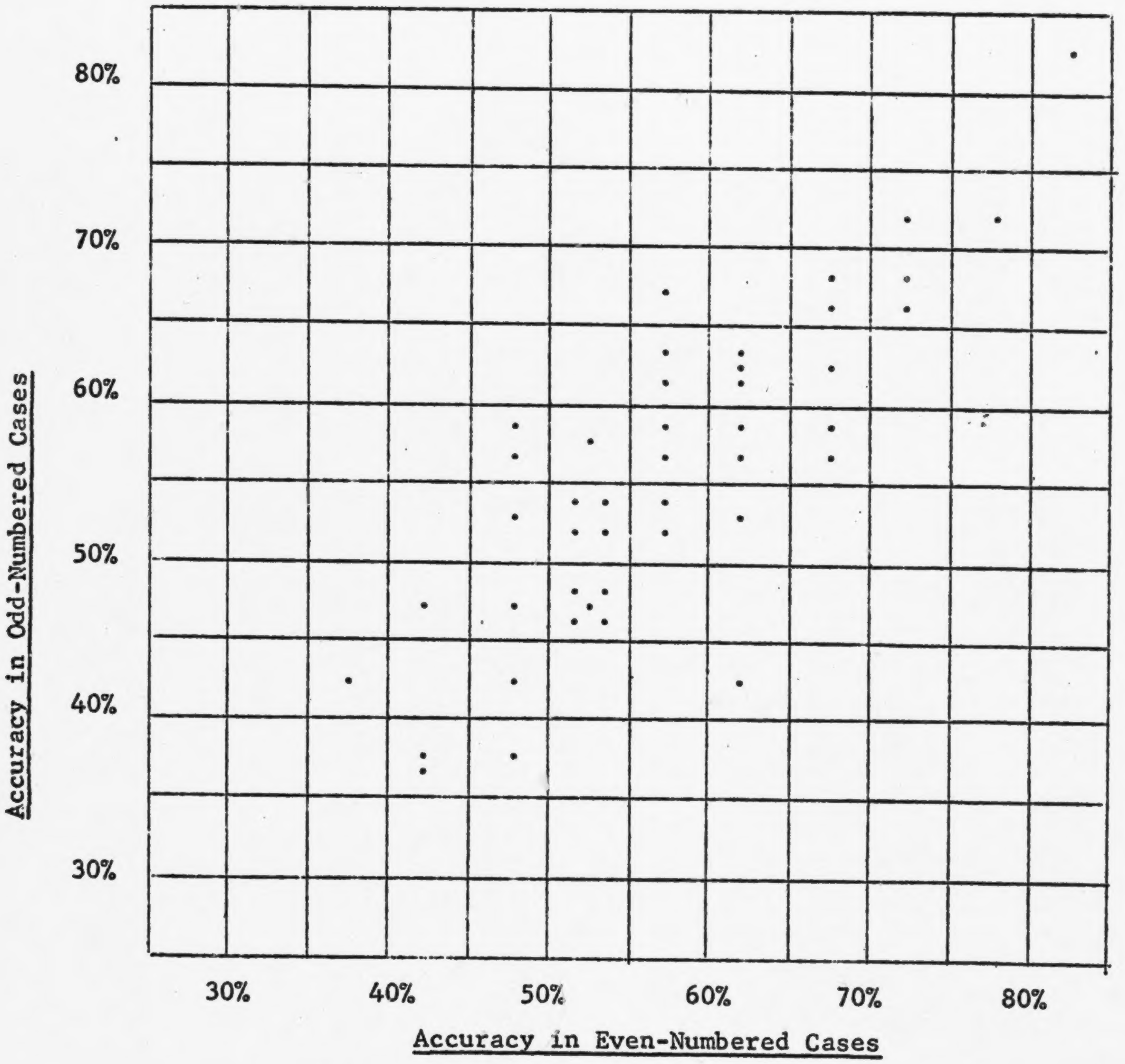
The third hypothesis was that the programed instruction model used in programed cases can be adapted to change the inferences which are made from standard personnel data. Note that ~~Table~~ Finding 16 shows a relationship bearing on this hypothesis.

20. Table X presents the validity of inferences 32 Business Administration students were able to make, using the programed personnel data on seven sales supervisors. The Chi-square was 98 with 9 d.f., significant at less than the .01 level. N = 224.

21. A correlation of .43 was found between the ability to make accurate inferences of performance, and interviewing competence as judged by objective observers. The N was 34 Business Administration students, significant at the .02 level.

TABLE VIII

Reliability of Prediction Scores

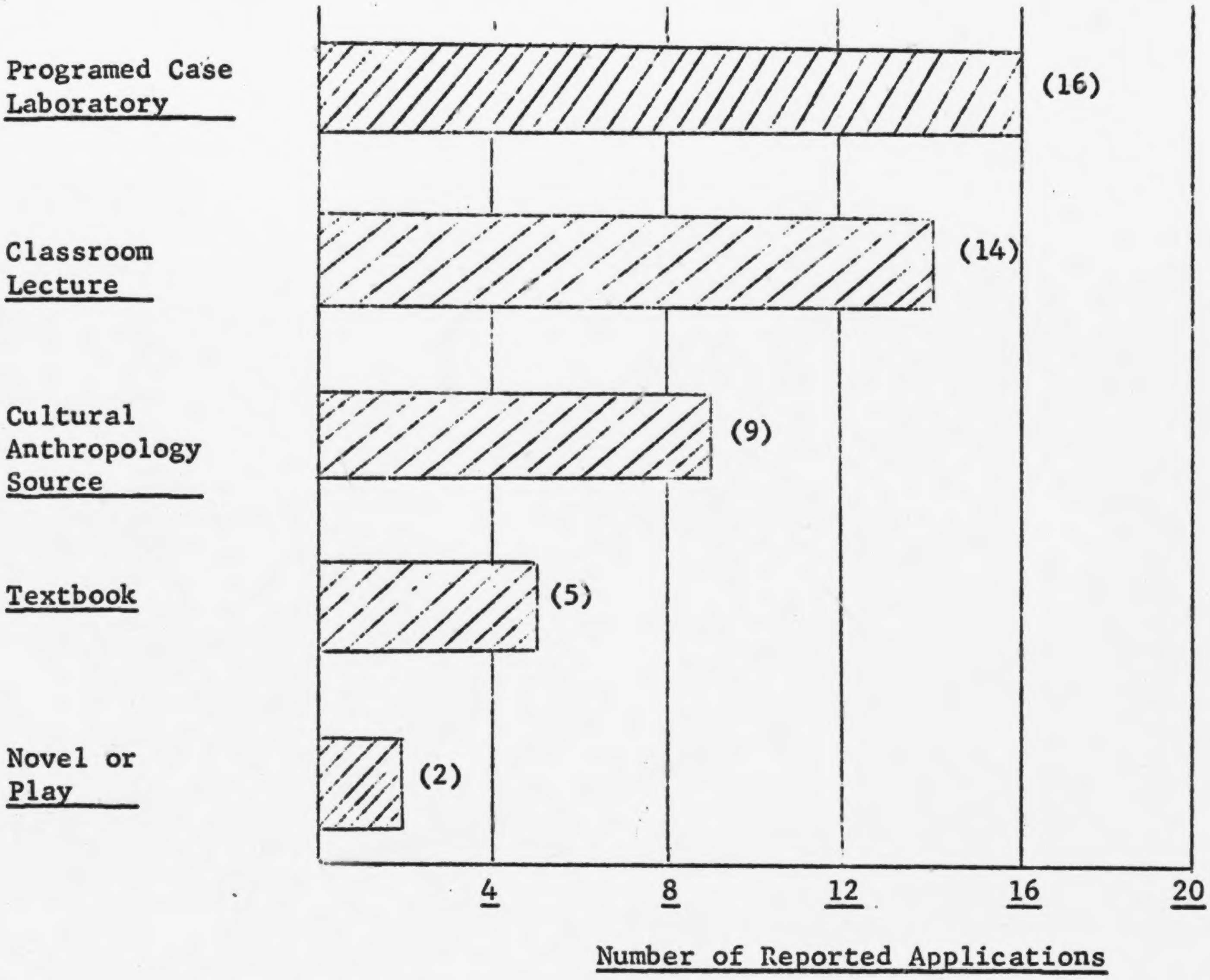


Legend: Data in this table report a reliability check on programed case results. With an N of 44 middle-level industrial managers, cases administered were split into odd- and even-numbered halves, with the accuracy levels attained between these two halves compared and reported in this table.

N = 44
r = .75

TABLE IX

Number of Specific Decision-Making Applications Reported



Legend: Students were asked to report specific instances of applications of training in decision-making resulting from the listed sources. The cultural anthropology source generally was typical reference material of the field pertaining to cross-cultural, or inter-cultural communications. The novel or play was one individually selected and read by each student.

TABLE X

Inference Validity Using Programed Personnel Data

Prediction of Rating by Students

	1	2	3	4
4	5	14	24	18
3	3	14	39	8
2	1	17	9	7
1	34	26	9	1

Actual Rating

Legend: Cell frequencies in table represent comparisons between predictions (inferences) of the performance of seven sales supervisors by students using programed personnel data, and the actual ratings attained by the seven individuals, on a one-to-four point scale. A total of 229 inferences were made by 33 students. A Chi-square of 98 is obtained, with nine degrees of freedom.

Summary of quantitative findings

1. Social Distance desired by applicant with interviewer is correlated with Understanding applicant believes interviewer has for him.

2. The understanding co-worker, as seen by federal supervisors, is closer in Social Distance than other co-workers.

3. Social Distance viewed by applicant is related inversely to qualification rating of applicant by interviewer.

4. Interviewers do a better job when applicants feel qualified.

5. Interviewers do a better job when they regard applicants as qualified.

6. Interivewers do a better job when the applicant's rating of Social Distance indicates greater intimacy and understanding.

7. Students clearly prefer the Self-confrontation method of training.

8. Many student self-criticisms of interviewing competence (after viewing the videotape playback) are codable, and tend to be at the extremes.

9. The students' and the instructor's interviewing competence models are similar.

10. There is agreement among objective judges, who have not received the same instruction in interviewing, as to interviewing competence.

11. Students agree on the types of interpersonal competence which constitute interviewing competence and managerial effectiveness.

12. .There is a systematic difference among government supervisors in their images of co-workers; depending upon the understanding between the supervisor and the co-worker, as viewed by the supervisor.

13. Older interviewers tend to be rated as more competent in interviewing.

14. A decision-making learning curve occurs when using the programed case method of instruction.

15. There is reliability in individual case scores, using the programed case method of instruction.

16. A relationship was found between programed case decisions and decisions using actual personnel data.

17. Students report making more applications on the job of the techniques taught in programed cases than from the other training methods sampled.

18. Korean college students can learn to infer the behavior of Americans by use of the programed case technique of training.

19. Korean college students react validly to case data about individuals.

20. Using programed personnel data, students can make valid forecasts of the performance of sales aupervisors.

21. There is a correlation between the ability to make accurate inferences of performance and interviewing competence.

Qualitative findings

Videotape and audio recording equipment. A leading question of methodology was in regard to the feasibility of the SONY videotape and audio recorders and similar equipment used in medical and Air Force research. A summary of the conclusions is reported here (see Appendix H for detailed report).

The SONY videotape recorder is suitable for fixed location research, has low procurement and operating costs, and very modest space requirements.

While this equipment, particularly the video recording units, has a high technical sophistication, only a bare minimum of technical skill is required for its operation. It was possible to initiate operation of the equipment with reference only to the brief manuals provided with the equipment; and thereafter, to instruct assistants to operate the equipment in a minimum of time.

The audio recorder was typical of the units produced for home use, the operation of which requires, for practical purposes, no technical skill.

Reasonable caution is necessary in the handling and use of the equipment, particularly with the video camera and videorecorder; however, the required precautions did not hamper our research operations.

Only two equipment defects or failures were encountered. While both are reported in Appendix H, it suffices at this point to report that neither failure was destructive. However, with respect to problem with the videorecorder, this points out the necessity of having service facilities available. There is an authorized SONY service representative in the Washington, D. C., area for maintenance of the video recording equipment. Service of the audio recorder can be obtained at any competent electronics service establishment.

While the quantative data (Table III) do not prove the video playback decisively superior to pure audio playback, examination of the student qualitative reports (see Appendix J for a sample) indicates that most of the self criticisms pertained to manner and visible action in a way that could be inferred with some difficulty from purely audible recordings.

A report from Dr. Desmond P. Wedberg, Director, Center for Educational Technology, at the University of Maryland, regarding the application of the videotape equipment follows:

> "Reactions to Dr. Dailey's questions
> February 4, 1967
>
> 1. What other equipment would be useful in this research? Two points come to mind. First, assuming you intend to build a video tape library of a wide variety of critical incidents in objective interviewing, will there be a need to duplicate the tapes for use by more than one student or group at a time? Does your proposal call for a dissemination function to get your findings and technique broadcast to your field in the shortest possible time? If this is a possibility, you will need a second video tape recorder for making duplicate tapes, or if you have need to edit your original tapes. If these are to be distributed nationally, you should also secure necessary graphics supplies for adding titles, credits, etc., for ready identification. If there is a need

to reach a very wide public for dissemination purposes, some of the critical incidents should be transferred to 16 mm kinescopes for use on any 16 mm sound film projector. Because of the incompatibility among the various makes and models of slant track video tape recorders, distribution of video tapes on a wide scale is making slow progress, and I do not see the incompatibility problem being solved in the near future.

"Second, have you considered simulation, that is, creating critical incidents on tape or film that a student can react to as he would be expected to in a real situation? For example, can you isolate specific "red flags" that cause an interviewer to lose his objectivity in interviewing a disadvantaged person? If so, these situations could be staged - audio tape might do as well here as video tape, in that the interviewee is not seen on the video tape - and an on-site instructor (counselor) could immediately analyze the student's response in terms of good or bad technique, or this phase might even be programed in a workbook accompanying the simulated critical incident. Dr. Bert Y. Kersh at Oregon College of Education has done much with this technique in working with student teachers before they reach a classroom of live youngsters. Further references are available on request.

"2. Are we making the best use of this equipment? Your use of the closed-circuit video tape system is equal to any I've seen around the country in professional education. Our greatest problem is in getting adequate sound recording because of working in large classrooms, and you do not have that problem. In fact, your tapes indicate the high quality recording that can be expected from the less expensive video tape recorder. I do wonder, however, if you will ever have a need to show on the monitor the interviewee as well as the interviewer? If so, a wide-angle lens (about $60 extra in exchange for the standard 1" lens that comes with the camera) would allow you to include the total environment in your tapes. While our project to train counselors of disadvantaged children seeks ends different from yours, for them we are installing two cameras - one on the interviewer and one on the interviewee in fixed position - and getting a video switcher ($110) so the TV operator can sit in another room and record either interviewer or interviewee as directed by the counselor-professor in charge.

"3. Who else in the country is using this kind of facility for related training? A survey I did for the American Association of Colleges for Teacher Education in 1965 indicated that by now over 50% of all teacher preparation institutions in this country are using closed-circuit video tape systems for recording observations of live classrooms and for recording performances of student teachers for later analysis. There is no substitute for and "canned" training lesson in that the instructor knows what is coming ahead, can better prepare his students for what is coming, and can give to all students a common experience. As for performance analysis, we all know that there is nothing equal to seeing oneself.

"4. Is it normally necessary to have an equipment man on call or retainer for prompt repair and maintenance? Yes, definitely. The state of the art of CCTV hardware is not yet reliable to the extent the audio tape recorder or 16 mm sound film projector is. A novice can operate the equipment as long as everything is working in normal mode. Minor maintenance and repairs, however, call for an electronics or TV specialist. We are having similar difficulties with computer assisted instruction (see the article in the Jan. 27 issue of LIFE, "The Computer as a Tutor," pp. 68-81), where experimental programs are plagued with breakdown times as high as 100 minutes per school day. Breakdown time is normally accepted today, though time will change this, obviously. The equipment you purchase should carry a one-year warranty from the manufacturer, and care should be exercised in selecting a local vendor who can service your equipment as quickly as possible. After the warranty period ends, you should negotiate a service contract with the local vendor, much as is done with IBM on their electric typewriters. The size of your operation does not warrant a fulltime electronics engineer and the $5,000 in test equipment to make in-house repairs.

"5. How much would it cost to make color film of such interviewing? While the going rate of commercial 16 mm color producers is $10,000 per minute of final print, a high-quality document in color to satisfy your needs could be done by college film production departments for between $25 and $50 per minute. Mr. John Sincell of our Film Production Center could give you more specific information on this."

Sensitivity training. A second question of methodology was the possible incorporation or substitution of T-groups for the methodology above. In general, these were our conclusions:

- T-groups have a small but present hazard of emotional stress which was not visible in the period of operation of the milder videotape playback and programed case laboratory.
- In spite of the hazard of T-groups, and occasional dissents to their use, the overwhelming preponderance of reports by participants and trainers suggests that the contributions of T-groups are decisive in the growth of the participants along many of the very dimensions stressed in this report as essential for personnel interviewers.

- There is no incompatibility of the Interpersonal Laboratory as defined above (videotape playback, programed case, etc.) with T-groups in most respects.

Automated chronograph. A third question of method was the possible use of the automated chronograph of the kind used for research at the William Alanson White Foundation in New York (17, 18, 19). In general, these were the conclusions:

- The data it obtains are of a simple, readily interpretable, and relevant type to the aims of interviewing research. In general, the method produces quantative measures of the extent to which interviewer speaks, applicant speaks, each responds to the other, each interrupts the other. See Appendix I.
- This equipment is suitable for fixed location research, has reasonably low procurement and operating costs, and reasonably low space requirements. See Appendix I.
- At present time, servicing is better done in the same city as the manufacturer, although there will eventually be no great difficulty in obtaining repair and maintenance service in other locations.
- Within a short span of time, it is anticipated that this type of equipment will be in wider use, as it has very important advantages of simplicity and objectivity over the other methods of study of interaction. See Appendix I.

Cost findings

1. The cost of development of a programed case is initially $1,000 for the first copy. As no decisive changes may be expected with less than a series of several such cases, the minimum initial cost for such a Laboratory of programed cases is about $10,000.

2. Additional costs of programed cases include printing, research analysis, and improvement for greater teaching impact. There are variable costs and are not estimated further at this point.

3. The cost of a small videotape recorder laboratory of the SONY type is approximately $1,275, including the components of a camera, tape recorder, and viewing screen. The preferable 23 inch viewing screen would mean an additional $100.

4. Operation costs of such a videotape laboratory include maintenance, tape (at $37.00 per hour) and space. These are variable costs and are not estimated further at this point.

5. The costs of development of programed personnel data are not estimated at this point, but they are in the range of programed case costs.

6. The cost of the automated chronograph is about $3,000.

7. The cost of operation of a T-group is based on personnel and space requirements. As only professionally trained instructors should conduct a T-group, these fees are fairly standard. It would cost normally from $500 to $1000 a week for a T-group of about 12 persons. To reduce this week would scale down these costs.

8. In general, the costs of such Laboratory training as is involved in all the components studied should be compared with university tuition costs in a private university, and with management training costs in industrial programs.

> -- Standard tuition of $3.50 per class hour would provide only the standard type of university instruction: additional subsidy of equipment would be needed to enlarge the program to include the videotape methods and programed case methods;
>
> -- for some American Management Association courses offered to practicing managers, tuition fees are usually $6.00 per hour. Other course costs are as high as $10.00 an hour.

The finding on cost standards is therefore from $3.00 per hour to $10.00 per hour, depending on the size of the group trained, the level of instruction, and the space and equipment requirements. These costs do not include salary or allowances for the trainees.

V. Discussion

This part of the Report is divided into interpretations of the findings on Self-confrontation, Programed Case instruction, and the effectiveness of the training model as a whole.

Self-confrontation

Trainee opinion as to the value of videotape playback ranged from "convinced" to "enthusiastic." While we cannot accept testimonial evidence alone, a review of the qualitative written reports of the trainees shows them full of critical observations quite relevant to the development of interaction skills (e.g., Appendix J).

A total of only twenty minutes on videotape for each interviewer~~, even when~~ supplemented by an additional twenty minutes as an applicant, could not suffice to produce measurable change, nor have we statistical findings indicating that it did. This would remain for future larger scale studies

What we did find is that the quantative interrelationships among such variables as Social Distance, rated understanding, rated excellence of interviewing, and rated qualifications of the applicant are significant and in the postulated direction. These relationships are summarized on the Model of Interaction presented in Figure 2 (following).

Model of Interaction. In the figure, J stands for the Interviewer, who is expected to "judge" the qualifications of the Applicant at the end of the interview. S stands for the Applicant, or subject of the interview. The model is arranged to show the flow of interaction, beginning on the left with the initial rapport-forming, and closing with a decision on the right.

The Model shows the relationships in visual form, suggesting for example that interviewers may do a poorer job with persons whose qualifications are lower. If true, this would substantiate a major point made in the analysis of the problem of disadvantaged persons earlier in this Report.

We do not know which direction(s) the cause ~~the~~ effect runs. For instance, Finding 3 reports that applicants are considered better qualified when they find the interviewer closer on the Social Distance scale - or should we conclude that applicants feel closer to the interviewer when they are better qualified for the job?

The earlier theoretical analysis suggested that bureaucratic interaction is characteristically impersonal and detached. This characteristic was rated by the objective judges who viewed the videotape recordings. Thus the finding of the objective judges' ratings are of especial interest. Among these findings were these conclusions:

-- the interview was more apt to be rated as impersonal and detached when the applicant was better qualified (Table IV)

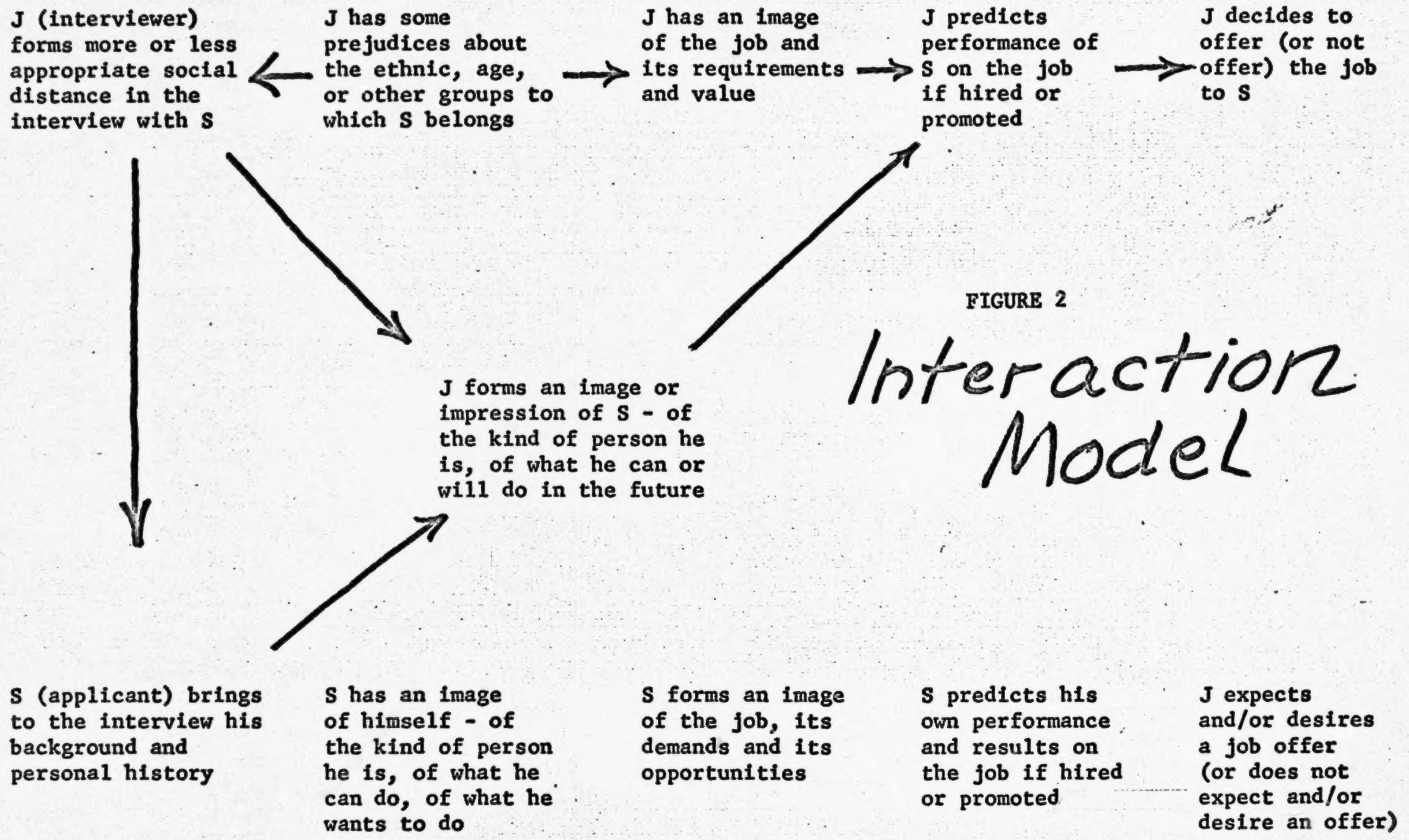

J (interviewer) forms more or less appropriate social distance in the interview with S
J has some prejudices about the ethnic, age, or other groups to which S belongs
J has an image of the job and its requirements and value
J predicts performance of S on the job if hired or promoted
J decides to offer (or not offer) the job to S
J forms an image or impression of S - of the kind of person he is, of what he can or will do in the future
S (applicant) brings to the interview his background and personal history
S has an image of himself - of the kind of person he is, of what he can do, of what he wants to do
S forms an image of the job, its demands and its opportunities
S predicts his own performance and results on the job if hired or promoted
J expects and/or desires a job offer (or does not expect and/or desire an offer)

FIGURE 2

Interaction Model

-- the interview was rated as impersonal and detached when applicants felt "distant" from the interviewer (on the Social Distance scale) (Table VI).

Thus, there appears some justification for the earlier contention that interviewers are more bureaucratic with less well-qualified people, and more bureaucratic when they maintain maximum Social Distance (as is possibly characteristic when middle-class interviewers talk with lower-class applicants).

The ideal interviewer. There is a rough consensus about what is meant by "good" interviewing, a consensus shared among the objective judges, between instructor and students, and to some extent among the federal supervisors samples. He is a person who has considerable information about the applicant, has equal or higher status than the applicant (as for example, is represented by age in Finding 13), has maturity in motivation, and has a frame of reference similar to that of the applicant.

To the extent that such a consensus exists, it could serve as a readily understandable standard of training, useful alike to both trainer and trainee. However, the evidence of possible role conflict (Finding 11) suggests some reasons why the "ideal interviewer" role is either not learned in the first place, or is not used when known.

Discrimination and Prejudice. We did not directly ask any interviewer whether he disliked or felt prejudiced toward a particular applicant. However, we analyzed the effectiveness of the Self-confrontation method in letting the interviewer see for himself the various non-verbal or gestural ways he has of "putting the applicant down." The theory here is somewhat similar to that used in the development of Social Distance as a key variable: that the applicant will feel free to put forth his qualifications only in the presence of an interviewer who shows at least a minimum acceptance of him as a human being.

The qualitative findings on this point were more impressive than the quantative. Student reports over and over gave examples of facial expression ("I didn't know I have such a frozen face"), inept vocalizing ("I kept breaking in on the guy, didn't I?"), and bodily behavior which would normally interfere with an applicant's sense of freedom.

Decision-making

Just as Self-confrontation in interviewing enables the person to view his own performance, Feedback in case inference-making enables him to view the validity of his own decisions. Is the educational value of such Feedback measurable?

Programed cases. The training experience in programed cases is considerably more sedentary than the socially active videotape laboratory procedures. The trainee works alone, with written documentary materials, although he may later discuss the decisions he made.

In spite of the lack of dramatic impact, the learning appears to be of enough magnitude to produce a gain of about one-fifth in accuracy within a few hours. Trainees generalize from one case to another; that is, learning to make more valid inferences in one case helps them in the following cases.

Finding 16 shows the decision-making process in the programed case to be similar to that in actual personnel selection cases, and Table IX suggests that applications to everyday performance from programed cases compare favorably with the other educational methods used.

The programed case methodology has been under development for only a few years, but thus far it has at least a modest educational impact and offers quantification possibilities for research in the decision-making process.

Programed cases and intercultural differences.

To the extent that intercultural differences aggravate the problems of appraising disadvantaged people, the programed case study offers some new possibilities. The demonstration that Koreans can make valid inferences about the behavior of Americans leads to the hypothesis that white middle-class administrators might be helped to learn about disadvantaged persons in this way. That is, the persons in one culture can presumably learn by this method to make inferences about persons in another culture.

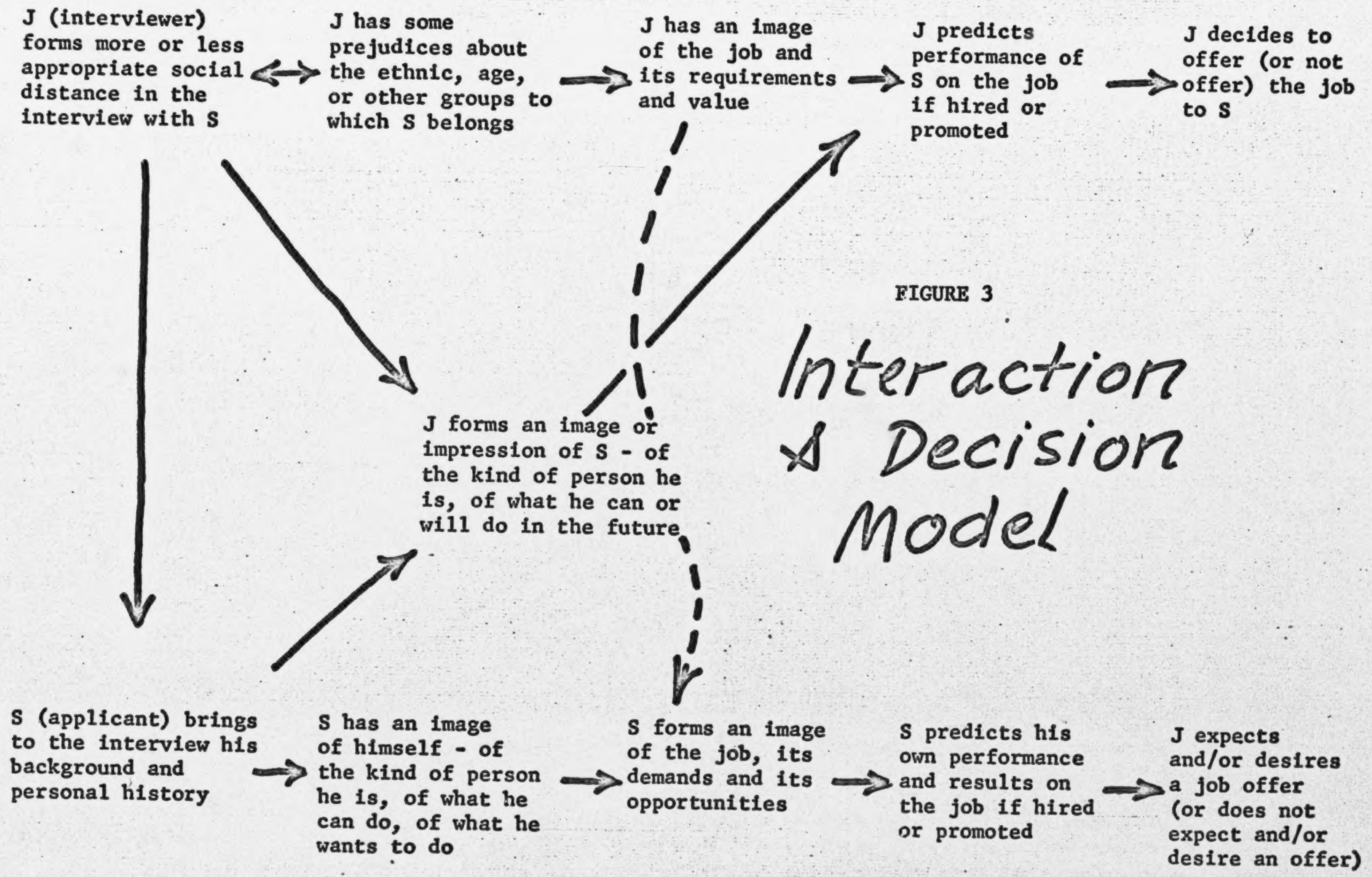
Applied to our theoretical framework, the hypothesis is that bureaucratic decision-makers (who work with small amounts of data in reaching a decision about a person) can learn to understand the culture of disadvantaged persons.

A model of decision-making. We are now ready to complete the Model begun in Figure 2. Why should appropriate interaction and Social Distance lead eventually to a better decision about the applicant? We assume, in Figure 3, that the applicant S feels he can tell his story to an interviewer with better rapport, and that such an interviewer therefore received more information.

Since, in general, the greater the quantity of data, the greater the validity of inferences, the interaction described in Figure 2 produces a more valid forecast. What the interviewer must forecast before he can decide whether to make a job offer is job performance.

The Model suggests that applicants who feel socially rejected will produce less data, and therefore the conclusions about them will be less valid. To the extent that this is in general true, the disadvantaged person neither gets a fair deal nor is his rejection valid.

Programed personnel data. The initial attempt to develop a streamlined version of the Programed Case, one using personnel and functional data, such as application blanks and test data, produced quantitative findings of interest (Finding 20) but did not excite great interest among the trainees (Finding 7).


J (interviewer) forms more or less appropriate social distance in the interview with S
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S forms an image of the job, its demands and its opportunities
S predicts his own performance and results on the job if hired or promoted
J expects and/or desires a job offer (or does not expect and/or desire an offer)

FIGURE 3

Interaction & Decision Model

Part of the difference from the programed cases (Table IX) may consist in the less frequent use of Feedback in the programed personnel data. Trainees made only ten forecasts of performance ratings in the entire series of programed personnel data, while they made 180 such forecasts in the programed case series.

In spite of the lesser impact of the programed personnel data technique, the evidence supports the assumption that the two forms of inference-making are similar (Finding 16). Inference-making skill may also be related to interviewing competence (Finding 21).

Overall evaluation of the training methods

1. Utility
   The identification of the problem is the objective of Part I of this Report. This evaluation is a matter of reader judgment.
2. Validity
   Behavioral effects of a qualitative type are described in regard to the videotape playback. Behavioral changes from the Programed Cases are described in Part IV, and appear statistically significant [note Findings 15 (Table VIII), 16, 18].
3. Rationality
   The Principle of Learning involved in videotape playback is presumably one of motivation, in regard to comparison of one's own behavior with a standard or role model. The Programed Case presumably trains by reinforcing valid inferences.

4. Scientific promise
   The Interaction Model of interviewing drew primarily upon Theories of Bureaucratic Organization and Social Distance (Parts I, II). The Model of Inference-making (Parts I, II), drew upon the theory of "Expedient Discrimination" in deriving our explanation of why apparently unprejudiced decision-makers indulge in stereotyped appraisals of people.

5. Feasibility
   The videotape training method was tested in operation in a standard university classroom. The Programed Case method has been used in university courses, management training programs in industry, and with foreign students (in translation).

6. Economy
   The costs involved for each component training method vary from $2.00 per hour per trainee (Programed Case) to $4.00 per hour (videotape playback). Instructional personnel and space would add to these cost levels. It appears possible that an Interpersonal Laboratory could be operated within the limits comparable to university and management training costs. Whether these costs are proportional to the benefits anticipated is a matter of opinion.

7. Manageability

   Both videotape and Programed Case methods provide records of what happened during training which appear subject to quantative analysis of results. In this sense, these methods yield Feedback of results.

8. Persistence

   The persistence of changes in behavior following training will, of course, have to be determined on the basis of additional research.

For a more detailed evaluation, please see Appendix G.

VI. Recommendations for future research and development

There were many assumptions and propositions offered in the theoretical section which, if true, would be of potential significance in improving the operation of the job market. The Bureaucratic Personnel system, for example, was linked to the existence and perpetuation of a chronically disadvantaged population.

The development of operational procedures for analysis and change of the way in which personnel interviewers function and make decisions has scarcely begun. That is, a feasibility study can do no more than provide a basis for a genuine and large-scale development and research program.

Our major recommendation, then, is to place both types of techniques (the Self-confrontation techniques and the Programed Case techniques) into a Research and Development Program to refine them and apply them to changing the operation of the job market when possible. This Research and Development Program can be understood in terms of two phases:

1. The further analysis of suspected relationships among factors such as the Frames of Reference (different ways of looking at job applicants), the amount

of information used (or ignored) by personnel interviewers working within those Frames of Reference, the impact of Social Distance and bureaucratic atmosphere upon the job applicant, etc.

2. The development of an integrated Interpersonal Laboratory which incorporates the present methods of training into its design and utilizes these training methods with personnel interviewers, both present and potential.

Scope and scale. The first type of study, which may be broadly conceived as more research than "development," would involve research personnel costs in the main. The second type of study, which actively develops, installs, and perhaps operates training centers which teach the skills of appraising disadvantaged persons would be larger in scale and cost.

A series of Research and Development Centers in Appraising Human Potential could be organized at various universities, management training centers, or other suitable locations. Such a Center could conduct both kinds of work - both do research in appraisal and interaction, and develop training and education programs for changing these patterns.

Estimated budgets for setting up a training laboratory

1. Design. The proposed Laboratory would require 40 training hours plus self study. They can be presented in a block of five days (preferred), with alternatives

of ten half days or five full days (each separated by a week). The components of the Laboratories are:

Interaction: use of videotape playback of interviewing
Programed case inference-making
Personnel data in programed form
T-groups
Discussion groups
Lecture
Other assigned reading

For research purposes, automated chronographs might also be installed on a fixed location basis.

2. Time breakdown. Suggested relative emphasis is indicated in the following number of hours devoted to each component:

Videotape playback	16 hours	40%
T-groups	10	25
Programed case discussion	8	20
Programed personnel decision-making	4	10
Lectures, orientation	2	5
Outside reading	0	0
	40 hours	100%

3. Initial costs:

Videotape playback	$ 8,000.00
T-groups	---
Programed cases	10,000.00
Programed personnel data	10,000.00
Other components	---
	$28,000.00

4. Operating costs (exclusive of space and staff personnel costs)

	Hours	per training hour	per week
Videotape playback	16	$4.00	$64.00
T-groups	10	2.00	20.00
Programed cases	8	2.00	16.00
Programed personnel data	4	1.00	4.00
Lectures	2	4.00	8.00
Outside reading	(at night)	---	5.00
	40	$13.00	$117.00

5. Staff and space costs

It is estimated that a Center with about 1200 square feet could house a Laboratory. The average rental costs for such a Center approximate $6,000.00 a year.

Such a Center could probably operate with a full-time Director, an associate, and a secretary. The estimated personnel cost would be $35,000.00 a year.

6. Total

Under the assumption that forty 12-person groups per year completed the Laboratory training, the cost for a year of operation would be:

Initial costs	$ 28,000.00
Operating costs (480 trainees)	56,000.00
Space and staff costs	41,000.00
	$125,000.00

A second Laboratory would cost less, because of sharing of the programed materials, the initial costs could be amortized for continuing operation beyond the first year.

7. Standard of comparison

The continuing operations costs plus space and staff would total $97,000 (this omits initial costs). Is this a reasonable cost for the benefit expected for 480 trainees?

The only standard of comparison available at present is university costs per hour of instruction and management training costs. There vary from $3.50 per hour for private liberal arts colleges to $6.00 per hour for executive development programs. The proposed lab would cost about $5.00 per trainee hour, for a forty hour program.

In general, every research project would involve special additional costs which could not be analyzed in this manner.

Administrative costs. These costs vary with specific universities, for Centers so located. They will not be estimated here, but are normally some percentage of personnel costs. It is estimated that they would add $1.00 per trainee hour.

A system of Laboratories

A well-equipped and staffed Research and Development Center would need several units of the equipment and material resources described in the section dealing with cost findings. It would need libraries of programed cases, both written and in filmed form.

A prototype of such a Center could be established in the greater Washington area within a few months, with expansion as indicated to similar Centers in other urban areas.

One advantage of a group of such Centers lies in the pooling of research data gathered in similar ways. Another advantage lies in their ability to influence both the federal government and national corporations whose managers are distributed throughout the country. A third advantage would lie in their joint ability to finance the development of new audiovisual, programed instruction, and advanced training materials which no one Center would be equipped to do alone.

The Social Need

While the costs are within the standard mentioned, they should, of course, have some proportion to the benefits expected.

There are perhaps 100,000 "Gatekeepers" who control the economic opportunities of Americans. If each such Gatekeeper should, as the result of this training, elect to provide one new job opportunity to a previously disadvantaged person, removing him as a public burden or as a family burden, would this decision be worth the $200.00 in direct training costs?

Of course, the objective in providing the training would be several times this minimum of "each one hire one." The need is many times larger than such a modest goal.

The social need, however, is not merely to give more people jobs, but to develop them so that they will and can do the work which needs to be done. The basic aim of the proposed Laboratory system is to educate administrators and managers to this more human conception of the hiring or promotion decision.

Bibliographic Notes

1. The occupational norms for aptitude tests will usually (perhaps invariably) show skewed distributions around the median. That is, lawyers are rarely less intelligent than, say, the 50th percentile, but often score at the 90th or higher. Carpenters are rarely less intelligent than the 30th percentile, but there are occasionally carpenters who are geniuses. The implication is that if we know a person's intelligence to be low, we can readily determine a number of occupations in which he cannot succeed. But if we know it to be high, the converse is not true: we cannot be as sure that he will succeed. For a further discussion of the implications of this problem, see D. Kahneman and E. E. Ghiselli, "Validity and non-linear heteroscedastic models," *Personnel Psychology, 15,* 1-11, 1962.

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VII. Appendices

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Appendix A

Response sheet used by Applicant
in interview (see following page).

Role: APPLICANT Date: ____________________ Interviewer: ____________________

Job sought: ____

Main duties: ____

____

AFTER THE INTERVIEW:

1. Write down your impressions of the interviewer. ____________________

____

2. How well do you think he knows you?

☐ as well as a close friend

☐ well enough that I would be willing to ask his advice on this job

☐ reasonably well, but not close

☐ superficially

☐ not too well

☐ not at all

3. As a result of this contact, can you see the interviewer as a person you would: (Check as many as would apply.)

☐ welcome as a member of the family

☐ enjoy having as a close friend

☐ welcome as an associate on the job

☐ willingly work for

☐ accept only as a casual acquaintance

☐ rather avoid

4. What did the interviewer do to help you present your qualifications for the job? ____________________

5. What did he do which made it difficult to present your qualifications for the job? ____________________

6. How convincing a case did you present in this interview? ____________________

____

7. What did you do that you regard as effective? ____________________

____

8. What did you do that you regard as ineffective? ____________________

____

9. How do you rate your qualifications for this job?

☐ confident I would do a top job of it

☐ would probably do a good job

☐ don't know

☐ am frankly very doubtful

AFTER THE REPLAY:

10. Write here any additional impressions you have of the interviewer.

____

11. What did you find out from the replay as to what you did that you regard as effective? ____________________

12. What did you find out from the replay as to what you did that you regard as ineffective? ____________________

13. What did you find out from the replay as to what the interviewer did that you regard as effective? ____________________

14. What did you find out from the replay as to what the interviewer did that you regard as ineffective? ____________________

15. How badly would you really want this job? ____________________

Appendix B

Response sheet used by Interviewer in interview (see following page).

Role: INTERVIEWER Date: ____________________ Applicant: ________________

Job sought: ____

Main duties: ____

____

AFTER THE INTERVIEW:

1. Write here all that you know about the applicant. Use back if necessary.

____

____

2. How easy was it to interview this applicant? ____________________

3. What did the applicant do or say that was most helpful in facilitating communication? ____________________

4. What did he do or say that was a hinderance? ____________________

5. How would you rate the applicant for this job?

A ☐ confident he would do a top job of it C ☐ don't know

B ☐ would probably do a good job D ☐ am frankly very doubtful

6. How easy did this person find it to talk to you? ____________________

7. What did you do which made it a good interview? ____________________

8. What did you do which was less effective? ____________________

AFTER THE REPLAY:

9. Write here any additional knowledge of the applicant you have gained from the replay. ____________________

10. Have you changed your rating of the applicant? Rating is now:

☐ A, ☐ B, ☐ C, ☐ D

11. Did you find out anything new from the replay as to what you did to make this a good interview? What? ____________________

____

12. Did you find out anything new from the replay as to what you did that was less effective? What? ____________________

____

13. How badly does the applicant want the job? ____________________

____

Appendix C

Response sheet used by Observer
in interview (see following page).

Role: OBSERVER Date: ____________________ Applicant: ________________________

Job sought: ____

Main duties: ____

____

AFTER THE INTERVIEW:

1. Write here all that you know about the applicant. Use back if necessary.

____

____

2. How well did they communicate? ____________________________________

3. What did the interviewer do to make it an effective interview? __________

____

4. What did the interviewer do which hindered communication? ______________

____

5. What did the applicant do to facilitate communication? __________________

____

6. What did the applicant do which hindered communication? ________________

____

7. How would you rate the applicant for this job?

A ☐ confident he would do a top job of it

B ☐ would probably do a good job

C ☐ don't know

D ☐ am frankly very doubtful

AFTER THE REPLAY:

9. Have you now changed your rating of the applicant? Rating is now:

☐ A., ☐ B., ☐ C., ☐ D.

10. Did you find out anything from the replay as to what the interviewer did that helped to make thia a good interview? What? ____________________

____

11. Did you find anything new from the replay as to what the interviewer did that hindered the applicant from telling his story? What? ______________

____

12. How badly does he want the job? ____________________________________

____

Appendix D

Answer sheet used by the independent judges when rating the interviews recorded on videotape (see following page).

Name ______________________ Interview number ______

GATEKEEPER QUESTIONNAIRE

1. Would you want to be interviewed by this person for a job you want very much?

/ (1) / (2) / (3) / (4) / (5) / (6) / (7) / (8) / (9) /

(1) Hope I never run into this interviewer

(5) Have no strong feelings for or against being interviewed by this person

(9) Would be willing to put my career in his hands.

Why?)
Why not?) (Please comment on reverse side.)

2. How well did the interviewer help the applicant present his qualifications for the job?

/ (1) / (2) / (3) / (4) / (5) / (6) / (7) / (8) / (9) /

(1) He harassed the applicant and made it difficult.

(5) He did an average job of giving the applicant a chance to talk.

(9) He made it possible to talk freely within the time limits.

Example: (Please comment on reverse side.)

3. How well do the participants know each other at the end of the interview - was there a genuine personal relationship?

/ (1) / (2) / (3) / (4) / (5) / (6) / (7) / (8) / (9) /

(1) The interviewer asked merely a series of routine questions.

(9) The interviewer formed a personal relationship with the applicant and knew him as an individual.

General comments: (Please comment on reverse side.)

4. Have you any other comments about specific observations during the interview? This would include comments which might be helpful to the interviewer. (Please comment on reverse side.)

Appendix E

The ratings by the independent observers are reported. The responses to the questionnaire (see Appendix D) have been converted using the following formula:

$$T = 50 + \frac{x - \bar{x}}{S} (10)$$

where: T = Converted Score

and where, for each question, for each interview:

x = Raw Score

$\bar{x}$ = Mean Value of Raw Scores

S = Standard Deviation of Raw Scores

The conversion compensates for the different ranges utilized by each observer, permitting a comparison of the scores. Thereafter, the three separate ratings for each question of each interview were summed; and finally, these three summed scores for each interview were totalled, yielding an overall score for each interview number.

(See following page.)

Appendix E (continued)

Interview Number	Q-1	Q-2	Q-3	Total
1	172	171	143	486
2	145	139	160	444
3	129	127	112	368
4	152	137	124	413
5	164	160	167	491
6	121	116	147	384
7	152	160	137	449
8	125	180	128	433
9	144	146	175	465
10	168	181	160	509
11	116	122	186	424
12	125	137	133	395
13	184	186	168	538
14	176	175	179	530
15	145	155	158	458
16	176	180	190	546
17	113	102	114	329
18	132	152	137	421
19	121	145	133	399
20	121	147	129	397
21	144	164	141	449
22	150	137	151	438
23	160	155	149	464
24	117	115	110	342
25	160	163	164	487
26	182	179	174	535
27	184	152	163	499
28	176	155	188	519
29	109	106	129	344
30	176	162	158	496
31	117	137	136	390
32	109	127	109	345
33	184	175	186	545
34	129	152	145	426
35	187	185	174	546
36	144	152	141	437
37	164	168	153	485
38	125	148	154	427
39	172	121	150	443
40	101	81	135	317
41	115	110	114	339
42	131	123	123	377
43	158	160	168	486
44	160	156	156	472
45	156	173	155	484
46	119	136	126	381
47	176	149	166	491
48	198	190	194	582
49	192	184	186	562
50	159	165	141	465
51	149	159	143	451
52	160	139	171	470
53	127	158	122	407
54	145	152	157	454
55	174	184	167	525
56	123	122	119	364
57	182	152	151	485

Appendix F

Sample programed case used during course of research (see following pages.)

Hernando Spain

In this case, you will see the application blank Hernando Spain filled out when a corporation was making its survey of potential sales managers in the Southern California area. Then you will see the personnel test results. After telling you of Hernando's rating in the eyes of his boss, the sales manager, we will then give you some more information: impressions of this man, as seen through the eyes of his interviewer. The main aim of this interview report is to give a deeper and more valid picture of Hernando.

- - - - - - - - - - - - - -

Application Blank

AGE	HEIGHT	WEIGHT	HEALTH
38	5'10"	150	good

EXPERIENCE Have been with the company 16 years, starting as a wrapper. Two years later, they gave me a sales route. After five years, I became a supervisor and held that position six years. These 13 years very happy and educative. In my position as sales supervisor, I was working against competitors in similar positions earning quite a bit more money than I was. They would put me to work in their roughest areas, usually low income, small account territories, and I would always be successful. I was told by my superiors that I was the best man. But my salary and position always stayed the same. So I transferred to another plant as route salesman. I feel it was a wise move--for now I am earning considerably more money. After two years, the second plant made me a sales supervisor.

EDUCATION High School. My schooling was curtailed because I was always working after school to help support our family. I still look back to my high school years as the most enjoyable time of my youth. The subjects I enjoyed most were bookkeeping, geography and history.

OUTSIDE ACTIVITIES: None. I feel that I missed a very important part of school life, couldn't belong to any clubs or organizations because of working, except the Knights (a service honorary group to which Hernando was elected).

MILITARY SERVICE: Served four years in the Navy and made boatswain's mate, first class. Taught me how to handle men.

WHAT ARE YOUR QUALIFICATIONS FOR PROMOTION? Have had a variety of experience selling food products. I am also at the age where I can still give this company many productive years. I feel I have the correct attitude and disposition to be a sales manager. Know how to handle men--get satisfaction out of getting them to do things.

FRANKLY, WHAT FAULTS WILL YOU HAVE TO OVERCOME? Am overly eager--don't have the time to do the things I want to do. Would like to improve my knowledge of mathematics.

FAMILY LIFE (COMMENTS) Married 20 years. Very proud of children--they are very popular. One thing that would keep me from accepting a promotion with the company would be a move--I couldn't move my children at this stage of their development.

- - - - - - - - - - - - - - - - - -

Personnel Test Findings

INTELLIGENCE: Overall intelligence--better than 90% of the general population.

TEMPERAMENT: Mostly a normal pattern. Exceptions: more sympathetic, aggressive, and subjective than most people. (The subjective trait means poor ability to act logically because so swayed by prejudice and his own point of view.)

hs

PREDICTIONS:

WHAT ARE HIS MAJOR ASSETS?

1. ______________________________

2. ______________________________

WHAT ARE HIS LIMITATIONS?

1. ______________________________

2. ______________________________

The boss made some of the following statements about Hernando's work and career. CHECK THE ONES YOU THINK HE MADE.

☐ A. "His strong points are the amount of soliciting he does and his handling of both his men and his customers."

☐ B. "He badly wants to get further education and feels that he will be held back in his career unless he does."

☐ C. "He does an excellent job of working with sales figures."

☐ D. "He controls his time closely and can account for every minute."

☐ E. "I use him primarily to sell the larger accounts."

☐ F. "He is self-reliant, rarely needs assistance in getting the job done."

HOW WOULD YOU RATE HIM FOR HIS PRESENT JOB OF SALES SUPERVISOR?

☐ 1. Consistently a top-notch performer

☐ 2. Average or just above average

☐ 3. Needs extra supervision

☐ 4. Does not belong on this job.

THE FACTS:

The sales manager rated Hernando / 1 / --consistently a top-notch performer. The sales manager made statements / A / and / F /, but directly contradicted statements / C / and / E /. He did not make / B / or / D /.

An Interviewer's Impression

A seasoned personnel interviewer took the same facts you saw in the application blank and probed deeper behind them. When he did this, the following picture emerged of Hernando Spain's background.

This man made slightly above average high school grades, but believes he could have done better had he applied himself thoroughly. He states that he was always popular and didn't really feel much of a challenge in his study. He liked to spend a lot of time in the gym and in intra-mural sports. He was elected to an honorary service club.

Hernando has taken no other education and frankly says that he does not intend to take any special courses because it would mean neglect of his family.

Let's look a little further into his background. His father was an unskilled worker in a sugar refinery. He died of leukemia. One brother is an office manager and the other operates a small upholstering business.

The Spains were married in high school. Their pride in the children, mentioned in the application blank, seems very real. He lets his wife handle the finances and does not object to her buying expensive clothes for the daughter. They are about three-quarters owner of their home. Both like to bowl and entertain often--backyard barbeques, swimming. He reads Life and Post thoroughly. Other magazines in the home: True, Look, Reader's Digest, and Good Housekeeping.

When asked about his willingness to move, he repeated his view that he should not disrupt his children's development.

The interviewer was told by Hernando's boss: "Hernando has been doing an outstanding job. I would like to give him a division sales manager's* job. His ability to handle men and customers far outweighs his weaknesses. He has the ability to teach and get the job done through others."

- -

DO YOU THINK THAT HERNANDO'S ABILITY TO HANDLE THE JOB OF SALES SUPERVISOR MEANS THAT HE WOULD ALSO BE A GOOD SALES MANAGER?

☐ Yes ☐ No

THE SALES MANAGER WANTS HERNANDO TO TAKE A COURSE IN BUSINESS ADMINISTRATION. DO YOU THINK THE COMPANY SHOULD ENCOURAGE HERNANDO TO TAKE THE COURSE?

☐ Yes ☐ No

WHY DO YOU THINK SO -- OR NOT? ____________

____

____

*In this company, a "Divisional Sales Manager" is a notch higher than the Sales Supervisor, and one notch lower than the Sales Manager.

hs

OPINION:

DO YOU THINK THAT HERNANDO WOULD BE A GOOD SALES MANAGER? ☒ No. While it can't be denied that Hernando has some good qualities, there is some strong evidence that he would not be a successful sales manager. A promotion would force him to give more attention to controlling his time and keeping sales records--the very points where he is weakest. At the same time, it would remove him farther from his customers and reduce his chances of cultivating their good will--one of the points where he is strongest. Moreover, Hernando seems determined to oppose any moves or instruction that would enable him to overcome some of his weaknesses. A promotion might cause the company to lose a good sales supervisor and gain a poor sales manager.

OPINION:

DO YOU THINK THE COMPANY SHOULD ENCOURAGE HERNANDO TO TAKE A BUSINESS ADMINISTRATION COURSE? ☒ No. Hernando has made it clear that he does not want any more education. He would resent any attempt to persuade him to change his mind. In that case it is doubtful that he would benefit from more instruction. Why not leave him alone and be thankful that the company has a good sales supervisor?

hs

Appendix G

A Procedure for the Evaluation of a Training Program or Method

Charles A. Dailey

1. Utility: a useful training design accurately analyzes the problem it purports to solve.

This criterion cannot readily be reduced to purely objective questions. However, it seems to have at least two logical sub-divisions:

- 1.1 Has the analysis on which the training is based made an accurate identification of the major causes of the problem which the training is trying to solve? Or has it made an accurate prediction of the forces which would produce the condition it seeks to create through the training?
- 1.2 Has it identified the human behavior which is part of these causes or forces? Is it likely that this behavior can be influenced or changed through training?

2. Validity: a training program is valid if it changes the behavior it is supposed to change.

- 2.1 Is there progressive change in the behavior during the training?
- 2.2 Is there progressive change during the training, which is not found in a comparable "control" group which does not receive the training?

3. Rationality: a rational design is one constructed along lines suggested by principles of Learning established in research and confirmed in practice.

This criterion is, in many ways, an approximation to Validity. If a training program does obtain the desired changes called for under Validity, then we do not care so much whether the design is Rational. If we cannot directly determine the Validity of the training, our concern about the Rational design is much greater. The following principles of Learning provide a rough framework for evaluating the rationality of the design:

3.1 Measureability: a rational training design provides for specific behavioral criteria of change which can be observed and measured. (These are not always the desired "end-products" implied under Validity, but must have at least a plausible connection with these goals).

3.2 Repertory: the trainee must be capable of producing the behavior which is supposed to be changed.

3.3 Rewards: the training program should provide rewards for changing which the trainee will regard as incentives, or else the material used must be "intrinsically" rewarding.

3.4 Feedback: standards to which the trainee can compare his behavior should be provided. (Note: meeting these standards is in some instances intrinsically rewarding)

3.5 Opportunity to practice: the trainee should be provided frequent opportunity to respond and practice the behavior which is supposed to be changed.

4. Scientific promise: a training program has scientific promise when its design and principles of construction are conceptually adequate.

This criterion is similar to the Rationality criterion. However, while Rationality draws upon the accumulated knowledge of behavioral scientists who have studied human and animal learning, this criterion draws on broader established knowledge and scientific method.

4.1 Explicit assumptions and concepts. In analyzing the problem (see Utility), the designer of the training will find that certain social factors and forces seem to induce the trainees to behave in the way that they do. He will make assumptions about these social factors and forces, and this criterion calls for his stating those assumptions. He should also define his concepts so that others can understand the reasoning behind the design. In this way, the design can often be compared with conceptually similar designs which have been shown to work effectively in other situations (or not to work).

4.2 Measureability: Ideally, the presentation of stimuli, the rewards, the "schedule," and the responses of the trainee can all be measured so that the functional relationships among them can be determined. The other factors represented among the concepts are also, ideally, measureable so that the behavioral change sought by the training can be shown in relation to the network of variables influencing or producing the change.

4.3 Generality of concepts: The concepts should not be merely ad hoc; they should pertain to behavior found outside the particular training situation as well as within it. For example, if Intelligence is merely "what intelligence tests measure," the concept has limited generality.

4.4 Verification: Does the model containing these more general concepts prove valid when tested against fact?

5. Feasibility: A feasible training system can be conducted within the particular administrative and physical environment.

5.1 Administrative acceptability: the administrators who are going to pay for or authorize the training should find its aims, content, and arrangements (see 5.2 and 5.3) acceptable. Do they fit the administrative context, the policies, and the procedures of the institution?

5.2 Physical feasibility: Can the equipment be used in the physical facility available and can it be operated by the personnel available?

5.3 Feasibility in time: Can the training program be completed within the time allocated and the cycles regarded as administratively feasible?

5.4 Feasibility in costs: Do the costs, in relation to the benefits, appear to the administrators to be appropriate?

6. Economy: a training program is economic when its costs are proportional to its benefits.

On this point, there is much irrationality on the part of Administrators. They do not object to high costs in training, when they are used to them, even though the benefits are unknown. A new cost, even when it is related to an estimated benefit of great importance, is often strenuously resisted.

6.1 Measureability of costs: the costs of each component of the training should be measureable. A typical analysis would include personnel, space, equipment, and living costs.

6.2 Measureability of benefits: some measurement or estimate of the potential benefits and outcomes must be possible.

6.2.1 Direct measurement: savings in known costs as the results of the training, or increased income.

6.2.2 Indirect estimates: here there is no way to relate the benefits to economic values in any direct sense, but the benefits are compared to that can be measured. For example, a Corporation decides it can justify a five million dollar headquarters building as well as the profits from a new five million dollar plant.

6.3 Proportionality: the costs should be in proportion to the benefits, either directly or indirectly:

6.3.1 Direct proportionality: the costs are literally balanced by known or forecast savings or gains.

6.3.2 Indirect proportionality: the costs are balanced by some accepted standard benefit which is estimated. For example, it is normally accepted that the economic and other benefits of a college education are at least worth the $3.50 per hour the student pays. A training program might use this as a standard.

7. Manageability: a training program is manageable if it provides Feedback to the Trainer, Administrator, Designer, and perhaps to the Trainee himself.

7.1 Feedback to Trainer: observation of trainee behavior and reaction will provide clues to the Trainer as to how he might or should adjust his approach to the particular population of the trainees. Some trainers are apprehensive about the "popularity" of the training, but other observations are often of equal or greater importance. This feedback must normally be frequent if it is to be useful.

7.2 Feedback to Administrator: observation of efficiency of the training, of immediate results, of persistence (see 8 below), and of costs (see 6 above) are essential to the administrator of training. This feedback need not come as frequently or immediately as that given to the trainer, but it must come soon enough to permit budgeting and planning.

7.3 Feedback to Designer: observations of behavior change (or lack of change) and the possible factors influencing the impact of the training need to reach the designer at intervals which would permit research and the development of new training approaches and materials.

8. Persistence: do the effects persist?

8.1 Clear objectives: an objective is clear if it can be measured or if its achievement can be reliably judged by qualified observers. A training program can have persistence if its objectives are clearly enough specified to permit follow-up observations of the trainee in his subsequent working or other environment.

8.2 Results: the persistence of these results can be determined as a function of time, in terms of generality, or in terms of maintenance of the behavioral change against strong competing forces.

8.2.1 Duration: the length of time the change is maintained.

8.2.2 Generality: the number of different ways in which the change is shown.

8.2.3 Resistance: the ability of the change to survive against contrary forces or influence.

Few training programs are oriented to the achievement of lasting results. This testifies to the bureaucratic orientation of traditional training departments. In some cases, however, it indicates an attempt to change a hostile environment. Thus, the effects of the training may be erased when the trainee returns to his place of work. It is not certain whether this should be blamed upon the training or upon the administrator in charge of the place of work. We have summarized this particular problem in terms of the variable Resistance (8.2.3).

Appendix H

Report on Videotape and Audio Recording Equipment

Video Camera

Caution is necessary in handling this unit as it is quite delicate and sensitive. Although it cannot be operated in the presence of strong magnetic fields, no practical problems were experienced in light of this caution. The viewfinder is reasonably accurate, but can be used only with the standard 25 mm, f.1.9 lens. However, the monitor can be used at all times to control the field of view.

By using an Automatic Electronic Sensitivity Control System to control the lens opening, the camera will perform adequately at lighting between average indoor conditions up to outdoor daylight with the lens aperture set at f.1.9. The lens opening can be closed down under intensive lighting conditions. Preliminary focusing can be done by estimating camera-to-subject distance; then, further, more precise focusing adjustments are made while monitoring the video pickup. At fairly close distances (six to ten feet), the focus is fairly sensitive; however, our experience revealed that the normal movements of a person sitting in a chair involved in an interview did not go beyond the field of focus. Consequently, once the proper focus adjustment is made, further adjustments were unnecessary.

Optional lens equipment [wide angle (12.5 mm focal length) and telephoto (75 mm focal length)] is available. These lenses would be useful under appropriate conditions:

(a) a wider field-of-view for a given camera-to-subject is permitted with the wide-angle lens. This would be an advantage whenever it would be desirable to monitor and/or record two or more individuals;

(b) the telephoto lens, conversely, permits a greater camera-to-subject distance while not widening the field-of-view. Thus, the camera could be placed at a greater distance from the interview so as to require less intrusion by the equipment during the interview, without reducing the visual "size" of the subjects on the monitor and/or during playback of the video recording.

These points are made because of the frequent desirability of seeing a reasonably close-up view of the subject in order to analyze his reactions and impact during the interview.

Connecting cables are available which permit the operation of the camera up to 160 feet from the video recorder unit.

Monitor

The demonstration equipment included an eight-inch monitor, which functions as a monitor to complete a closed-circuit monitoring system, as a monitor during video recording, as a viewer during playback of a video recording, or as a standard television receiver for VHF or UHF broadcasts. The unit is quite portable, weighing ten pounds, with no unusually critical handling requirements, beyond those encountered with the standard home television receiver. A 23 inch monitor is also available. Also, nearly any commercial home television receiver can be adapted to fulfill this function.

Video Recorder

The primary requisite in operating this unit is the caution necessary with respect to the video recording heads, which are mounted on a drum and pass diagonally across the tape. These heads are quite small, and being attached to the drum with epoxy cement, can be broken from the drum if proper care is not utilized. However, our experience was uneventful on this issue; no particular safeguards beyond that of reasonable care were required; a simple communication of caution permitted a technical novice to operate the unit properly.

Otherwise, the unit is little more sensitive to operation than the typical home-purpose audio tape recorder. Threading the tape through the unit is a simple, manual operation, requiring no technical dexterity. The operation of the controls is a straight-forward process, requiring no electronic technical ability beyond the steps involved in starting and/or stopping the unit. The remaining operating requirement is the establishment and monitoring of audio and video recording levels. Once established for a given recording environment, these levels rarely require further adjustment. These audio and video level settings are not stringently critical, permitting the recording levels to fluctuate somewhat without substantial effect on the video or audio playback quality. There is also an AC (Alternating Current) power input level meter on the unit.

Although the recording can be viewed on the monitor, control of the audio and video recording levels is managed solely at the video recorder. Conversely, audio and video control during the playback of the recording is accomplished totally through controls at the monitor. Thus, there is substantial simplicity in the physical operation of the equipment.

Audio Recorder

Few comments are necessary regarding the operation of this unit. The ease and convenience of operation of home-type tape recorders are common knowledge. No basic problems were encountered in the operation of this unit. Each participant in the interview can be recorded separately. The unit permits "sound-on-sound" recording, whereby material recorded previously can be combined with newly recorded material.

Failures

Only two technical problems were encountered during our use of the audio and video recording equipment. An intermittent problem developed with the video recorder, wherein the video portion of the playback could not be obtained. Due to an inflexible schedule with which we were confronted at the time, it was not practical to surrender the video-recorder for an extensive service examination. The service center examined the unit briefly, but was unable to locate the problem. In view of our shortage of time, and since the equipment was functioning with only occasional interruptions, we proceeded without securing further technical examination of the unit. The overall consequence of this problem was very minor, although it highlights the necessity of having service facilities available.

The other technical malfunction occurred with the audio recording equipment, and was so minor as to be barely of any significance. The audio recorder is equipped with level meters by which the sound level of the source being recorded is monitored. This monitoring function permits the operator to maintain a sufficient audio input, and to avoid an excessive recording level, with the accompanying distortion and feedback. One of the two level meters (two meters are provided, one for each channel in stereophonic recording) failed to function. However, this failure had no impact on our operations; consequently, no corrective steps were taken. This failure would be of concern in the recording of music where the recording level is of a critical nature, but this is not the case in a conversation recording environment.

Operation in general and maintenance

In general, it is apparent that the equipment can be operated by the novice. However, the need for available engineering skill for repairs and detailed maintenance is mandatory. This is clearly evident when considering the fact that the equipment is of extreme technical complexity, even though its operation requires the minimal technical competence. It is, indeed, an accomplishment in technology and design to have engineered the high-level technical capability of the equipment into a unit susceptible to efficient operation by an amateur.

Noting the requirement of available engineering-level service facilities, the SONY Corporation has established a network of authorized service centers in 39 cities in 19 states throughout the United States (data as of summer 1966), including a convenient location in Kensington, Maryland. As was noted by our technical consultant in this field, there are only two alternatives with this issue; either an accessible service center, or the presence of a qualified engineer-technician on the staff. The latter alternative is feasible only when the equipment in use is of the quantity and scope necessary to justify and require the full-time services of such a professional. Since this situation is not foreseeable, the availability of a service center is both preferable and sufficient.

These comments apply to both audio and video recording equipment; however, it is reasonable to anticipate that the audio recording equipment would be less susceptible to failure simply because of its reduced engineering complexities.

The possibility remains that an extremely elusive technical problem might arise which could not be corrected by the available service center. In such an instance, it would be necessary to send the defective unit to a better-equipped service facility for further examination. However, such a breakdown is not anticipated to be a burdensome probability.

Application

The mechanical and technical composition of the equipment has been described, and based upon this description, its application and relevance to training can be stated. The general advantages of "audio-visual" training or instructional devices are well-known and accepted throughout industry, government, and the educational sphere. Given the observable necessity of moving the unemployed and underemployed into a higher level of productivity for the benefit of the individual and society, we now have the opportunity to employ audio and video recording devices as tools in the struggle to "get jobs for people."

The equipment makes possible a nearly immediate feedback in the teaching process. This is of considerable value with the audio recording equipment, but achieves an immense value with the video equipment. Now, within seconds of completing a training or simulation session, the video playback can be shown to the participants. The nearest competitor in this feature is motion-picture equipment, which would have a normal time-lag between production and playback of several days. The scheduling complexities thus avoided with video-recording equipment are ample; however, even this advantage is outdistanced by the demonstrable improvement in the learning process brought about by prompt feedback. A hypothetical problem can be used to typify the logical validity of this: if a problem is posed to two individuals, A and B, to which they then respond, and the correct response (feedback) is then given immediately to A, but not furnished to B for one week, it is apparent that A will receive a greater learning impact than B. Indeed, learning impact may be viewed as a direct function of the time lag between response and feedback, other factors being held constant. This is, incidentally, a primary feature of programed learning techniques. Thus, the equipment not only strengthens the teaching impact by providing feedback information to the individual himself, but accomplishes this task almost immediately.

Finally, the equipment permits a permanent, yet visual and realistic record of interview situations to be maintained. Thus, it is possible to record a controlled simulated situation, and then use this recording for instructional purposes. Another possibility available is the recording of interview situations and the subsequent viewing of these recordings by various professionals with the goal of a better understanding of the interview situation in order to make the interview more productive and efficient; and specifically, in terms of this research, to aid in eliminating the effects of prejudice in the job interview. Within either or both of these potentialities, there exists the possibility of establishing a reference library of video (or audio) tapes designed for specified instructional purposes. This approach might be extended to a library service, from which widespread distribution of tapes could be achieved. The problem of video-tape compatability (whether a videotape recorded on one unit can be played back on another unit) is encountered here. At the present time, little flexibility beyond that of using the same video recorder model is available. (However, there would be the alternative of transferring the recording for projection on any 16 millemeter movie projector.) This problem is not present with audio tapes. It is nearly certain that further concepts of application will become known in the future.

Conclusion

In a general sense, the equipment problems and potential requirements can be viewed as functions of the physical environment being recorded and the technical finesse desired. Our comments and observations regarding the use of this equipment in interview-training-understanding applications will be stated within this framework.

The impact of the physical environment can be illustrated by an example involving a classroom, teacher-training situation. This situation would require an audio and video recording capability sufficient to record activity throughout the classroom. The video segment of the recording presents no major problem here, because the equipment operator has merely to alter the direction of the camera. However, the audio segment of the recording would present a crucial problem. With the individuals dispersed throughout the room, it becomes extremely difficult to pick up and record the conversational dialogue. Further, there would be constant and disconcerting annoyance in the recording because of various sounds of individuals "scuffling" their feet, and other numerous, but perfectly natural sources of noise. It is quite possible that the only totally satisfactory solution would be the establishment of a sound-studio arrangement, with accoustic control features and the installation of several overhead microphones. These steps would be expensive, and would result in the total absence of portability.

Fortunately, our equipment-application does not involve this problem. Although the video-recorder is equipped with only one audio input, facilitating one microphone, we were not hampered severely by this limitation, being reasonably successful in achieving audio pickup originating from the two interview participants through one microphone. However, this procedure was somewhat awkward, requiring constant monitoring, to a degree that was disconcerting to the interview participants. This problem can be solved easily by the use of separate microphones for each interview participant and an audio mixer, which is necessary due to the availability of only one audio input. This problem does not exist with the audio recorder, as two audio inputs are available.

In order to improve the video-recording techniques, one of two steps might be taken: either, the use of a wide-angle lens; or the use of two cameras, one viewing the job applicant, and the other viewing the interviewer.

A switching device is then used to select the desired camera. Either of these steps would complete the recording technique by permitting both interview participants to be recorded. (The alternative of using two cameras may be preferable because of a further technical sophistication which would be advantageous. Specifically, using two cameras and further equipment, it would be possible to present both interview participants on the monitor simultaneously, permitting observation and evaluation of the stimuli and responses present in the interpersonal action between the interview participants.) Also, should the duplication of editing of tapes be required, a second video-recorder would be needed.

The physical requirements of the space used during the recording sessions, while not critical, must meet reasonable standards. Satisfactory room lighting and absence of excessive noise distractions are necessary. Adequate space requirements are needed for the interview participants and the equipment components.

Beyond these basic technical and physical space requirements, further consideration of necessary facilities can be discussed in terms of the bearing of the physical facilities on the interview participants. Granting that there will, by definition, remain the element of simulation during the recording sessions, all avoidable artificiality should be excluded. This suggests an office atmosphere, decorated accordingly. This writer suggests that the video camera and audio microphones simply be placed in convenient locations in the room. The placement of cameras or observers behind a one-way mirror is not favored for this procedure. The participants in the interview being recorded will, of course, be aware that the recording is being made. Consequently, an effort to conceal any of the equipment by introducing an unknown and unseen aspect, could well be detrimental fo the interview session. Thus, under the circumstances, a minimum of artificiality is combined with a maximum of realism and ease of the participants. To this end, we suggest a separate room in which the recorder and monitor would be operated to remove these distractions from the interview atmosphere.

Selected equipment specifications

Video camera:

Lens:	F.1.9, 25 mm ("C" mount)
Signal-to-noise ratio:	more than 40 db.
Power requirements:	115-120 V-AC, 60 cps.
Power consumption:	10 watts
Dimensions:	3 1/8" (w) x 5½" (h) x 9 7/8" (1)
Weight:	5 lbs 15 ozs

8" Television Monitor:

Picture tube:	8" picture measured diagonally, 90° deflection, aluminized screen
Power requirements:	115-120 V-AC, 60 cps.
Power consumption:	23 watts (maximum)
Dimensions:	9" (w) x 10" (h) x 8 5/8" (d)

Videorecorder:

Video Recording System:	Rotary two-head plant track scanning
Video Resolution:	greater than 200 lines
Recording time:	60 minutes using 2370 tape-feet per reel

Videorecorder (continued)

Tape speed:	7.5 inches/second
Tape width:	½ inch
Video signal-to-noise ratio:	greater than 40 db.
Audio frequency range:	80 - 10,000 cps.
Audio signal-to-noise ratio:	greater than 40 db.
Power requirements:	115-120 V-AC, 60 cycle ± 0.4 cps.
Power consumption:	80 watts
Dimensions:	18" x 10 7/8" x 15 5/8"
Weight:	46 lbs.

Audio Recorder:

Power requirements:	117 V-AC, 60 cps.
Power consumption:	50 watts
Tape speed:	7½ or 3 3/4 ips.
Tape reels:	7 inches or smaller (diameter)
Recording system:	4 track
Frequency response:	30 - 17,000 cps. at 7½ ips. 30 - 13,000 cps. at 3 3/4 ips.
Signal-to-noise ratio:	greater than 40 db (at peak record level)
Level controls:	individual for each channel, for playback and record

Inputs:

(a) Low-impedance microphone inputs - 250 - 1,000 ohm impedance

(b) High-impedance auxiliary inputs -

Dimensions:	15" (w) x 8 5/16" (h) x 15 5/16" (d)
Weight:	25 lbs.

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Appendix I

Automated Interaction Chronography

The interview is, in part, a conversation. The psycholinguistic problems involved are complex when the participants are from a similar culture, but much more so when they are from different cultures or social classes. The research of Feldstein, et al. (17, 18, 19) is directed toward the objective study of conversation, especially in the interviewing between doctor and patient.

Dialogue, Feldstein says, has a temporal structure which can be objectively described (18). That is to say, the interaction between two persons over a period of time has stable or predictable properties of duration of speech, switching (from one to the other), pauses, and simultaneous speech. These properties are not only reliable, but have some potential significance. For example, anxious people were shown to have shorter "switching pauses" than nonanxious.

The simplest way to describe the measurements which can be made in the system Feldstein describes is to simply list the possible combinations of these conversational states between two persons, A and B:

silences by both
vocalizing by A
vocalizing by B
vocalizing by both

In two successive time intervals, there are 16 possible combinations. For example, A may break a joint silence or B may break it; it may continue; or both may break it. The most probably finding (in the interviews his research group sampled) was that the silence would continue; then either A or B would break it; rarely would both A and B break it.

We make no attempt in this brief summary to list the many implications of their method. The most important property is for us here its objectivity. This is based on the use of an electronic system known as the Automatic Vocal Transaction Analyzer (AVTA). This system records what is said, transforming the voice of each participant into an on-or-off record which is then punched onto IBM cards. The card then shows who was talking at any given point, and how long (over how many IBM columns).

The system records only presence or absence of vocalizing. While this may seem a simple requirement, it is not feasible to meet it by the use of intuitive observers for really large numbers of interviews. Nor was it so simple, apparently, to design the electronic system involved.

The interview is recorded on a tape recorder so that the voice of each participant is confined to one channel. The audiosignal in that channel is amplified and rectified. This signal is then filtered, producing a signal proportional to the loudness of the voice. When this signal passes through a threshold device, it actuates a relay (if over the threshold). This threshold excludes the random noise but is set low enough to catch the voice of the speaker on that channel even if soft.

These relays actuate the IBM keypunch directly. This punch system turns on at regular intervals (it may be set from one per second to ten per second), and if the voice on the channel is over the threshold level, the card is punched for that time point.

What is punched on the card is simply an On signal or an Off signal for each point in time. Punches on the

Zero row indicate no one was talking; thus a series of these punches measures the duration of Silence by Both. Punches on the One row indicate A was talking; thus a series of these punches measures the duration of Vocalization by A. The same is true of the punches on the Two row, for B. Vocalizing by both at once is indicated by punches for the same time intervals on rows One and Two.

The reliability estimates of these durations vary from .916 to .997. Human operators judging these variables produce reliability estimates from .873 to .987. These values are for one minute samples. For longer samples and other variables (such as sum of durations of speech), the human operator drops in reliability as low as .624, while the AVTA reliability does not fall below .882 (17).

It is obvious that the computation of experimental variables from the AVTA record is then a far simpler matter than from the non-punchcard recording form.

Appendix J

Below is a sampling of comments reported by interview participants regarding the Self-confrontation impact of the videotape technique. There is no particular order intended in this listing. A sample report of one of the interview participants follows this listing.

-- frequently used expression "I see" that became annoying and redundant

-- assumed certain things about the applicant that shouldn't have been assumed

-- at a loss for words - stammered

-- put applicant at ease

-- kept interview moving, bringing out necessary points

-- repeated questions to clarify recapping highlights

-- biassed to a degree (gave more weight to education)

-- gave indifferent impression

-- over-controlled conversation

-- inability to establish rapport

-- "applicant's personality lacked warmth and I found myself being cold in return"

-- interview was organized: introduction, main sequence, conclusion

-- let unfavorable early impression block future communication

-- not organized regarding having questions ready for follow-up

-- interrupted applicant

-- problem keeping applicant from rambling or wandering from line of questioning

-- tend to look too serious

-- tending to jump to conclusions

- -- questioning that helped gain insight into individual
- -- didn't allow applicant to speak enough
- -- too "cold" in my approach
- -- had to restate questions to be understood
- -- not effective in reducing my own barrier to communication resulting in little empathy
- -- nervousness and made applicant ill at ease
- -- appeared impatient
- -- could decide what facts would affect performance directly or relate with others to affect it
- -- asked surface-type questions
- -- sometimes didn't lower a person's resistance to being interviewed
- -- explained the purpose of the interview to the applicant
- -- asked questions and didn't really pay attention to response
- -- put applicant on the defensive
- -- unintentionally interrupted applicant
- -- perhaps over-emphasized past work experience as favorable indication
- -- "directed questions to subjective facts like his attitudes and opinions"
- -- while making conscious effort not to pre-judge a person during first few minutes of interview, still does it somewhat
- -- sometimes sarcastically humorous
- -- lack experience to handle special [interviewing] problems
- -- cold and mechanical manner
- -- concentrated too much on asking questions and not enough on understanding the applicant
- -- failed to project empathy

Appendix J (continued)

Sample Student Report

"Section I will be divided into two parts, the first dealing with my techniques as an interviewer and the second with my techniques as an applicant. Let us begin with what I consider to be the prime areas of ineffectiveness in my interviewing technique.

"I feel that my major drawback was nervousness. It was perfectly obvious to all concerned that I was very nervous and this tended to make the applicant ill at ease. It is impossible to conduct an interview effectively if you are nervous. I think that through the course of three interviews this nervousness tended to lessen but it was still present in the final interview.

"Generally speaking for the first two interviews, I did not have a clear program for the interview. It became evident as the lab progressed that this program was vital and by the final interview I had managed to develop such a plan. The danger of not having a plan is that you tend to wander around through the course of the interview and repeat yourself in your questioning. In addition, I found at the end of the interview that I was not certain that I had covered all of the salient points; in fact, I found that I had overlooked many of them. The lack of such a plan hindered my effectiveness because there was no guide for the interview and thus no way of knowing when the subject had been adequately covered. Likewise, there was no way of justly telling whether or not the applicant was qualified for the position as there was no written evaluation to check.

"Another fault that I discovered through the replay was that during the first interview I seemed impatient - I moved around a lot and nodded my head a lot. This action is bad in that it tends to annoy the applicant and give him the impression that the interviewer is not interested in what he has to offer. I succeeded in reducing the number of unnecessary movements in latter interviews.

"In all of the interviews, I had consistently poor beginnings. I was not able to come up with some joke or bit of news of interest to the applicant but rather proceeded immediately to the matter of the interview itself. This practice is definitely a bad one as it does not provide for harmony or "breaking the ice" but instead catches the applicant off guard.

"I found further that I did most of the talking in the early interviews. This was largely a result of not having a clear plan of operation and unfamiliarity with the subject. The questions were overstated in my opinion. They could have been asked more clearly with fewer words. The object of the interview is to get the applicant to talk and I was not terribly effective in this respect.

"Generally speaking, my technique suffered from a lack of direction or organization and the resultant unease on the part of both myself and the applicant. Further, I found that I let my sentences trail off at the ends and did not speak loudly enough or clearly enough in the first interview. In addition, the type of questions were poor. I generally asked questions that would be answered on any application. I noticed that most of the people I observed did this also but there were a few that didn't and the interview was much more effective. Bob was a good example - his questions dealt mainly with getting to know the applicant as a person whereas mine were on the factual level primarily. I thought his interviews were quite good. I think my interviews did improve as a result of experience and I got so that I rather enjoyed the lab towards the end.

"As far as my effectiveness is concerned, the good points in my technique are fewer in number than the areas that need improvement. The principal thing that I did that I regard as being effective is the use of open end questions. I always tried to use this kind of question as it allows the applicant to present his qualifications in his own words and fully. These questions are supposed to be leading in nature and I feel that most of the time mine were.

"I asked specific questions on information that the applicant had already given, especially in those areas that I felt the applicant was most familiar. Generally, these questions were clarifying questions, asking the applicant to elaborate on some information he had already given. I feel that this technique was effective in that it was a means to keep the applicant talking - he had already demonstrated a willingness and a knowledge of the information. Further, the questions were necessary for a fuller understanding of the applicant's qualifications. In this fashion, I demonstrated to the applicant that I was listening to what he was saying and taking an interest in him. I also asked questions that related to his application, which of course, was nonexistent.

"After watching the replay of my first interview, I tried to talk as little as possible in the next two interviews. I was able to be at least partially successful in this endeavor because I had worked out a general plan of proceeding for interviews. Using this as a guide, I was able to concentrate on listening to the applicant rather than trying to think up another question while he was answering one. By concentrating on listening rather than talking I feel that the interviewer is able to show the applicant that he is genuinely interested in what he has to say. This will, in turn, encourage him to speak more freely and expansively.

"Finally, and this may seem to be somewhat fanciful, I tried to dress properly. I feel that this is important to the success of the lab as we are trying to assume roles and if one doesn't look like an interviewer, he will not be regarded as one and the interview will proceed on the plane of a theatrical play - entirely unrealistic and therefore valueless.

"Applicant:

"I think that I was much more effective as an applicant than as an interviewer although this is a bad thing to admit to as this course is concerned with effective interviewing. Still, it is, to me, just as important to learn how to be an effective applicant as it is to be an effective interviewer. The role of the applicant is easier than that of the interviewer as the applicant does not have to direct the interview or formulate questions. I think, however, that the applicant is much more effective after he has played the role of interviewer than before.

"My effectiveness as an applicant was largely concerned with the way in which I answered the questions. I tried to answer them fully and also volunteered information whenever it was possible. This was not the case with the first interview. I tried to listen to the questions carefully so that I could give the interviewer the information he wanted. I also tried to smile at the interviewer whenever possible to set him at ease. The main thing to remember here is that to have an effective interview, to get anything out of this lab, you must pretend that it is the real thing and to conduct yourself as if you were actually applying for the job at that time. By doing this I think you can be an effective applicant.

"I was ineffective as an applicant because I tended to repeat myself in my answers and used too many "uhs" as well as beginning to answer his questions before he had finished asking them. In many cases I let my sentences trail off at the end so that the interviewer could not know what I had finished answering. In the first interview I did not appear to be too enthusiastic about the job for which I was applying which didn't help the interviewer too much. In one of the interviews I really didn't have an answer to one of the questions and this was quite apparent in the replay. This tended to destroy the realism in the interview.

"In general, I think my effectiveness as an applicant varied with the interviewer. Two of the interviewers that I had made it very easy for me to give answers to their questions. They asked the kind of questions that I could answer easily and fully. They were effective interviewers. With these interviewers I couldn't help but be effective because they were effective. The areas in which I need improvement are understanding the requirements of the job and relating my qualifications to them; also, listening fully to the question and waiting until the interviewer is through speaking before I begin.